

Four Dollars

T H E

Summer 1990

BROOKINGS

R E V I E W

A large, detailed illustration of a red apple. The apple is shown in a cutaway view, revealing a school building inside. The building has multiple stories, windows, and a bell tower. The apple is set against a dark background with a thin white border.

*A Choice Plan
for Public Schools*

Plus:

Lessons from Tiananmen

Europe 1992

The Warsaw Pact

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T H E
BROOKINGS
R E V I E W

Summer 1990 Vol. 8, No. 3

3 A Considered Opinion

Thomas E. Mann

4 America's Public Schools: Choice Is a Panacea

John E. Chubb and Terry M. Moe

13 Europe 1992: Opportunities and Challenges

Gary Clyde Hufbauer

23 The Redesign of European Security

John D. Steinbruner

26 Some Small Change for Defense

William W. Kaufmann

35 The Warsaw Pact Today — and Tomorrow?

Raymond L. Garthoff

41 In the Shadow of Fernald: Who Should Pay the Victims?

Kenneth R. Feinberg

47 Crises in Communist Reform: Lessons from Tiananmen

Harry Harding

52 Capital Investment: Key to Competitiveness and Growth

Ralph Landau





Don't Crowd Out the Private Sector

In the spring issue Arthur M. Hauptman's thoughtful article, "Navigating the Maze of New College Financing Options," addresses the need for federal college savings incentives. Mr. Hauptman correctly recognizes the importance of utilizing the abundant and outstanding resources of the private sector in order to cultivate thrift among the nation's families. However, his specific proposal for a college savings incentive would do the exact opposite, that is, displace the private sector.

Mr. Hauptman suggests increasing the interest paid on U.S. Series EE Bonds if it is used to pay for college expenses, thereby creating a preemptive federal savings product. Enactment of this proposal would discourage and place at a competitive disadvantage those institutions that now seek to help college savers.

The Bush administration's Family Savings Account proposal and Senator David Boren's Family College Savings Act provide tax incentives to college savers and have the collateral benefit of creating a level playing field for all market participants. If savings incentives are to be truly effective, they must not crowd out the private sector.

*Peter A. Roberts, Chairman
College Savings Bank, Princeton, New Jersey*

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CORRECTION

In the spring issue there is an error in the article on modern pluralism. On page 24, the second sentence of the fourth paragraph in the left-hand column should read: Conversely, a substantive definition of religion would serve secular interests because secular humanism and similar ideologies would not fall within the scope of the establishment clause and could therefore be supported by the state without violating the First Amendment.

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Lifting Spirits in Washington

by Thomas E. Mann

Smart money in the political community says that the two major negotiations now under way — on the budget deficit and campaign finance — will be as desultory and unproductive as Washington's predictable long hot summer. The capital, by all accounts, is a city in decline, its politicians trapped in an elaborately choreographed game of avoiding blame, fiddling while long-term problems fester and extraordinary new challenges go unmet.

It seems an odd time for such a sour and cynical note to overwhelm the nation's capital. After all, the nation is enjoying its eighth year of economic expansion. The collapse of the Soviet bloc and the first stirrings of democracy in Eastern Europe are clear victories for our postwar policy of containment. George Bush is a popular president, pursuing a tactically adept presidency. The highly charged ideological battles of the Reagan years have given way to substantial areas of agreement and compromise between the president and Congress.

Yet discontent with the state of American politics is widespread. It stems, I believe, from a perception that our political leaders are engaging in risk-averse, defensive, even escapist behavior when the times require more.

No two issues better symbolize this sense of political failure than the budget deficit and campaign finance. True, politicians have struggled long and hard in the face of public disinterest to contain (if not cure) the deficit problem. The fact remains that the budget imbalance continues to depress national saving, elevate real interest rates, and stifle debate on how to deal with the country's most critical challenges.

And while much of the commentary on the corrupting influence of



money in elections is overwrought and hyperbolic, the present congressional campaign financing system does in fact undermine electoral competition, give organized interests special access, and weaken the legitimacy of the political system. Countless efforts to remedy these problems have foundered on the shoals of public opinion, partisan conflict, and policy dissensus.

But hope springs eternal, even in Washington, and now another pair of efforts is under way to break the political impasse. President Bush's call for a budget summit with no preconditions and the appointment of campaign finance negotiators by Senators George Mitchell and Robert Dole have moved both issues to the front burner. The threat of massive automatic budget cuts under Gramm-Rudman and the Senate's embarrassment over the Keating Five savings and loan scandal have conspired to

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force action on the deficit and campaign finance.

The same cautious approach to these negotiations that characterized past efforts will almost certainly produce little more than cosmetic change this time. Fear of being blamed for raising taxes or cuts in middle-class entitlements will build enormous pressure to change the budget targets in lieu of eliminating the deficit. Uncertainty about the potentially volatile 1992 elections will make incumbents reluctant to tamper with campaign finance rules that work so much to their advantage.

Yet imagine how the mood in Washington would improve and the self-confidence of the country increase if both sets of discussions proved successful. There is no mystery about what it will take to solve each problem; the essential ingredients have long been known. Dealing effectively with the budget deficit will entail a broad-based program of tax increases and defense and entitlement savings. Reforming the congressional campaign finance system will almost certainly involve partial public financing combined with reasonably high spending limits.

Nor is there any mystery about the political calculus that has prevented agreement from being reached on either issue. Breaking the political impasse will necessitate some new thinking by President Bush and members of Congress, a determination to shape public opinion rather than simply respond to it, a willingness to risk some short-term electoral security in pursuit of long-term interests of their party and country.

In short, what is needed to provide a breath of fresh air in this Washington summer is for our leaders to lead. □

Choice Is a Panacea

John E. Chubb and Terry M. Moe

For America's public schools, the last decade has been the worst of times and the best of times. Never before have the public schools been subjected to such savage criticism for failing to meet the nation's educational needs — yet never before have governments been so aggressively dedicated to studying the schools' problems and finding the resources for solving them.

The signs of poor performance were there for all to see during the 1970s. Test scores headed downward year after year. Large numbers of teenagers continued to drop out of school. Drugs and violence poisoned the learning environment. In math and science, two areas crucial to the nation's success in the world economy, American students fell far behind their counterparts in virtually every other industrialized country. Something was clearly wrong.

During the 1980s a growing sense of crisis fueled a powerful movement for educational change, and the nation's political institutions responded with aggressive reforms. State after state increased spending on schools, imposed tougher requirements, introduced more rigorous testing, and strengthened teacher certification and training. And, as the decade came to an end, creative experiments of various forms — from school-based management to magnet schools — were being launched around the nation.

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We think these reforms are destined to fail. They simply do not get to the root of the problem. The fundamental causes of poor academic performance are not to be found in the schools, but rather in the institutions by which the schools have traditionally been governed. Reformers fail by automatically relying on these institutions to solve the problem — when the institutions are the problem.

The key to better schools, therefore, is institutional reform. What we propose is a new system of public education that eliminates most political and bureaucratic control over the schools and relies instead on indirect control through markets and parental choice. These new institutions naturally function to promote and nurture the kinds of effective schools that reformers have wanted all along.

Schools and Institutions

Three basic questions lie at the heart of our analysis. What is the relationship between school organization and student achievement? What are the conditions that promote or inhibit desirable forms of organization? And how are these conditions affected by their institutional settings?

Our perspective on school organization and student achievement is in agreement with the most basic claims and findings of the “effective schools” literature, which served as the analytical base of the education reform movement throughout the 1980s. We believe, as most others do, that how much students learn is not determined simply by their aptitude or family background — although, as we show, these are certainly influential — but also by how effectively schools are organized. By our estimates, the typical high school student tends to learn considerably more, comparable to at least an extra year’s worth of study, when he or she attends a high school that is effectively organized rather than one that is not.

Generally speaking, effective schools — be they public or private — have the kinds of organizational characteristics that the mainstream literature would lead one to expect: strong leadership, clear and ambitious goals, strong academic programs, teacher professionalism, shared influence, and staff harmony, among other things. These are best understood as integral parts of a coherent syndrome of organization. When this syndrome is viewed as a functioning whole, moreover, it seems to capture the essential features of what people normally mean by a team — principals and teachers working together, cooperatively and informally, in pursuit of a common mission.

How do these kinds of schools develop and take root? Here again, our own perspective dovetails with a central theme of educational analysis and criticism: the dysfunctions of bureaucracy, the value of autonomy, and the inherent tension between the two in American public education. Bureaucracy vitiates the most basic requirements of effective organization. It imposes goals, structures, and requirements that tell principals and teachers what to do and how to do it — denying them not only the discretion they need to exercise their expertise and professional judgment but also the flexibility they need to develop and operate as teams. The key to effective education rests with unleashing the productive potential already present in

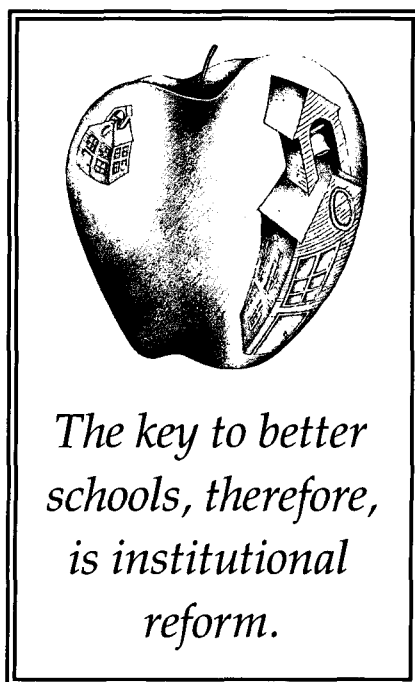
the schools and their personnel. It rests with granting them the autonomy to do what they do best. As our study of American high schools documents, the freer schools are from external control the more likely they are to have effective organizations.

Only at this late stage of the game do we begin to part company with the mainstream. While most observers can agree that the public schools have become too bureaucratic and would benefit from substantial grants of autonomy, it is also the standard view that this transformation can be achieved within the prevailing framework of democratic control. The implicit assumption is that, although political institutions have acted in the past to bureaucratize, they can now be counted upon to reverse course,

grant the schools autonomy, and support and nurture this new population of autonomous schools. Such an assumption, however, is not based on a systematic understanding of how these institutions operate and what their consequences are for schools.

Political Institutions

Democratic governance of the schools is built around the imposition of higher-order values through public authority. As long as that authority exists and is available for use, public officials will come under intense pressure from social groups of all political stripes to use it. And when they do use it, they cannot blithely assume that their favored policies will be faithfully implemented by the heterogeneous population of principals and teachers below — whose own values and professional views may be quite different from those being imposed. Public officials have little choice but to rely on formal rules and regulations that tell these people what to do and hold them accountable for doing it.



These pressures for bureaucracy are so substantial in themselves that real school autonomy has little chance to take root throughout the system. But they are not the only pressures for bureaucracy. They are compounded by the political uncertainty inherent in all democratic politics: those who exercise public authority know that other actors with different interests may gain authority in the future and subvert the policies they worked so hard to put in place. This knowledge gives them additional incentive to embed their policies in protective bureaucratic arrangements — arrangements that reduce the discretion of schools and formally insulate them from the dangers of politics.

These pressures, arising from the basic properties of democratic control, are compounded yet again by another special feature of the public sector. Its institutions provide a regulated, politically sensitive setting conducive to the power of unions, and unions protect the interests of their members through formal constraints on the governance and operation of schools — constraints that strike directly at the schools' capacity to build well-functioning teams based on informal cooperation.

The major participants in democratic governance — including the unions — complain that the schools are too bureaucratic. And they mean what they say. But they are the ones who bureaucratized the schools in the past, and they will continue to do so, even as they tout the great advantages of autonomy and professionalism. The incentives to bureaucratize the schools are built into the system.

Market Institutions

This kind of behavior is not something that Americans simply have to accept, like death and taxes. People who make decisions about education would behave differently if their institutions were different. The most relevant and telling comparison is to markets, since it is through democratic control and markets that American society makes most of its choices on matters of public importance, including education. Public schools are subject to direct control through politics. But not all schools are controlled in this way. Private schools — representing about a fourth of all schools — are subject to indirect control through markets.

What difference does it make? Our analysis suggests that the difference is considerable and that it arises from the most fundamental properties that distinguish the two systems. A market system is not

built to enable the imposition of higher-order values on the schools, nor is it driven by a democratic struggle to exercise public authority. Instead, the authority to make educational choices is radically decentralized to those most immediately involved. Schools compete for the support of parents and students, and parents and students are free to choose among schools. The system is built on decentralization, competition, and choice.

Although schools operating under a market system are free to organize any way they want, bureaucratization tends to be an unattractive way to go. Part of the reason is that virtually everything about good education — from the knowledge and talents necessary to

produce it, to what it looks like when it is produced — defies formal measurement through the standardized categories of bureaucracy.

The more basic point, however, is that bureaucratic control and its clumsy efforts to measure the unmeasurable are simply *unnecessary* for schools whose primary concern is to please their clients. To do this, they need to perform as effectively as possible, which leads them, given the bottom-heavy technology of education, to favor decentralized forms of organization that take full advantage of strong leadership, teacher professionalism, discretionary judgment, informal cooperation, and teams. They also need to ensure that they provide the kinds of services parents and students want and that they have the capacity to cater and adjust to their clients' specialized needs

and interests, which this same syndrome of effective organization allows them to do exceedingly well.

Schools that operate in an environment of competition and choice thus have strong incentives to move toward the kinds of "effective-school" organizations that academics and reformers would like to impose on the public schools. Of course, not all schools in the market will respond equally well to these incentives. But those that falter will find it more difficult to attract support, and they will tend to be weeded out in favor of schools that are better organized. This process of natural selection complements the incentives of the marketplace in propelling and supporting a population of autonomous, effectively organized schools.

Institutional Consequences

No institutional system can be expected to work perfectly under real-world conditions. Just as democratic institutions cannot offer perfect representation or per-

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fect implementation of public policy, so markets cannot offer perfect competition or perfect choice. But these imperfections, which are invariably the favorite targets of each system's critics, tend to divert attention from what is most crucial to an understanding of schools: as institutional systems, democratic control and market control are strikingly different in their fundamental properties. As a result, each system structures individual and social choices about education very differently, and each has very different consequences for the organization and performance of schools. Each system puts its own indelible stamp on the schools that emerge and operate within it.

What the analysis in our book suggests, in the most practical terms, is that American society offers two basic paths to the emergence of effective schools. The first is through markets, which scarcely operate in the public sector, but which act on private schools to discourage bureaucracy and promote desirable forms of organization through the natural dynamics of competition and choice.

The second path is through "special circumstances," — homogeneous environments free of problems — which, in minimizing the three types of political pressures just discussed, prompt democratic governing institutions to impose less bureaucracy than they otherwise would. Private schools therefore tend to be effectively organized because of the way their system naturally works. When public schools happen to be effectively organized, it is in spite of their system — they are the lucky ones with peculiarly nice environments.

As we show in our book, the power of these institutional forces is graphically reflected in our sample of American high schools. Having cast our net widely to allow for a full range of noninstitutional factors that might reasonably be suspected of influencing school autonomy, we found that virtually all of them fall by the wayside. The extent to which a school is granted the autonomy it needs to develop a more effective organization is overwhelmingly determined by its sectoral location and the niceness of its institutional environment.

Viewed as a whole, then, our effort to take institutions into account builds systematically on mainstream ideas and findings but, in the end, puts a very different slant on things. We agree that effective organization is a major determinant of student achievement. We also agree that schools perform better the more autonomous they are and the less encumbered they are by bureaucracy. But we do not agree that this

knowledge about the proximate causes of effective performance can be used to engineer better schools through democratic control. Reformers are right about where they want to go, but their institutions cannot get them there.

The way to get schools with effective organizations is not to insist that democratic institutions should do what they are incapable of doing. Nor is it to assume that the better public schools, the lucky ones with nice environments, can serve as organizational models for the rest. Their luck is not transferable. The way to get effective schools is to recognize that the problem of ineffective performance is really a deep-seated institutional problem that arises from the most fundamental properties of democratic control.

The most sensible approach to genuine education reform is therefore to move toward a true institutional solution — a different set of institutional arrangements that actively promotes and nurtures the kinds of schools people want. The market alternative then becomes particularly attractive, for it provides a setting in which these organizations take root and flourish. That is where "choice" comes in.

Educational Choice

It is fashionable these days to say that choice is "not a panacea." Taken literally, that is obviously true. There are no panaceas in social policy. But the message this aphorism really means to get across is that choice is

just one of many reforms with something to contribute. School-based management is another. So are teacher empowerment and professionalism, better training programs, stricter accountability, and bigger budgets. These and other types of reforms all bolster school effectiveness in their own distinctive ways — so the reasoning goes — and the best, most aggressive, most comprehensive approach to transforming the public school system is therefore one that wisely combines them into a multifaceted reformist package.

Without being too literal about it, we think reformers would do well to entertain the notion that choice is a panacea. Of all the sundry education reforms that attract attention, only choice has the capacity to address the basic institutional problem plaguing America's schools. The other reforms are all system-preserving. The schools remain subordinates in the structure of public authority — and they remain bureaucratic.

In principle, choice offers a clear, sharp break from

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the institutional past. In practice, however, it has been forced into the same mold with all the other reforms. It has been embraced half-heartedly and in bits and pieces — for example, through magnet schools and limited open enrollment plans. It has served as a means of granting parents and students a few additional options or of giving schools modest incentives to compete. These are popular moves that can be accomplished without changing the existing system in any fundamental way. But by treating choice like other system-preserving reforms that presumably make democratic control work better, reformers completely miss what choice is all about.

Choice is not like the other reforms and should not be combined with them. Choice is a self-contained reform with its own rationale and justification. It has the capacity *all by itself* to bring about the kind of transformation that reformers have been seeking to engineer for years in myriad other ways. Indeed, if choice is to work to greatest advantage, it must be adopted *without* these other reforms, since they are predicated on democratic control and are implemented by bureaucratic means. The whole point of a thoroughgoing system of choice is to free the schools from these disabling constraints by sweeping away the old institutions and replacing them with new ones. Taken seriously, choice is not a system-preserving reform. It is a revolutionary reform that introduces a new system of public education.

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A Proposal for Real Reform

The following outline describes a choice system that we think is equipped to do the job. Offering our own proposal allows us to illustrate in some detail what a full-blown choice system might look like, as well as to note some of the policy decisions that must be made in building one. More important, it allows us to suggest what our institutional theory of schools actually entails for educational reform.

Our guiding principle in the design of a choice system is this: public authority must be put to use in creating a system that is almost entirely beyond the reach of public authority. Because states have primary responsibility for American public education, we think the best way to achieve significant, enduring reform is for states to take the initiative in withdrawing authority from existing institutions and vesting it directly in the schools, parents, and students. This restructuring cannot be construed as an exercise in delegation. As long as authority remains “available” at higher levels

within state government, it will eventually be used to control the schools. As far as possible, all higher-level authority must be eliminated.

What we propose, more specifically, is that state leaders create a new system of public education with the following properties.

The Supply of Schools

The state will be responsible for setting criteria that define what constitutes a “public school” under the new system. These criteria should be minimal, roughly corresponding to the criteria many states now use in accrediting private schools — graduation requirements, health and safety requirements, and teacher certification requirements. Any educational group or organization that applies to the state and meets these minimal criteria must then be chartered as a public school and granted the right to accept students and receive public money.

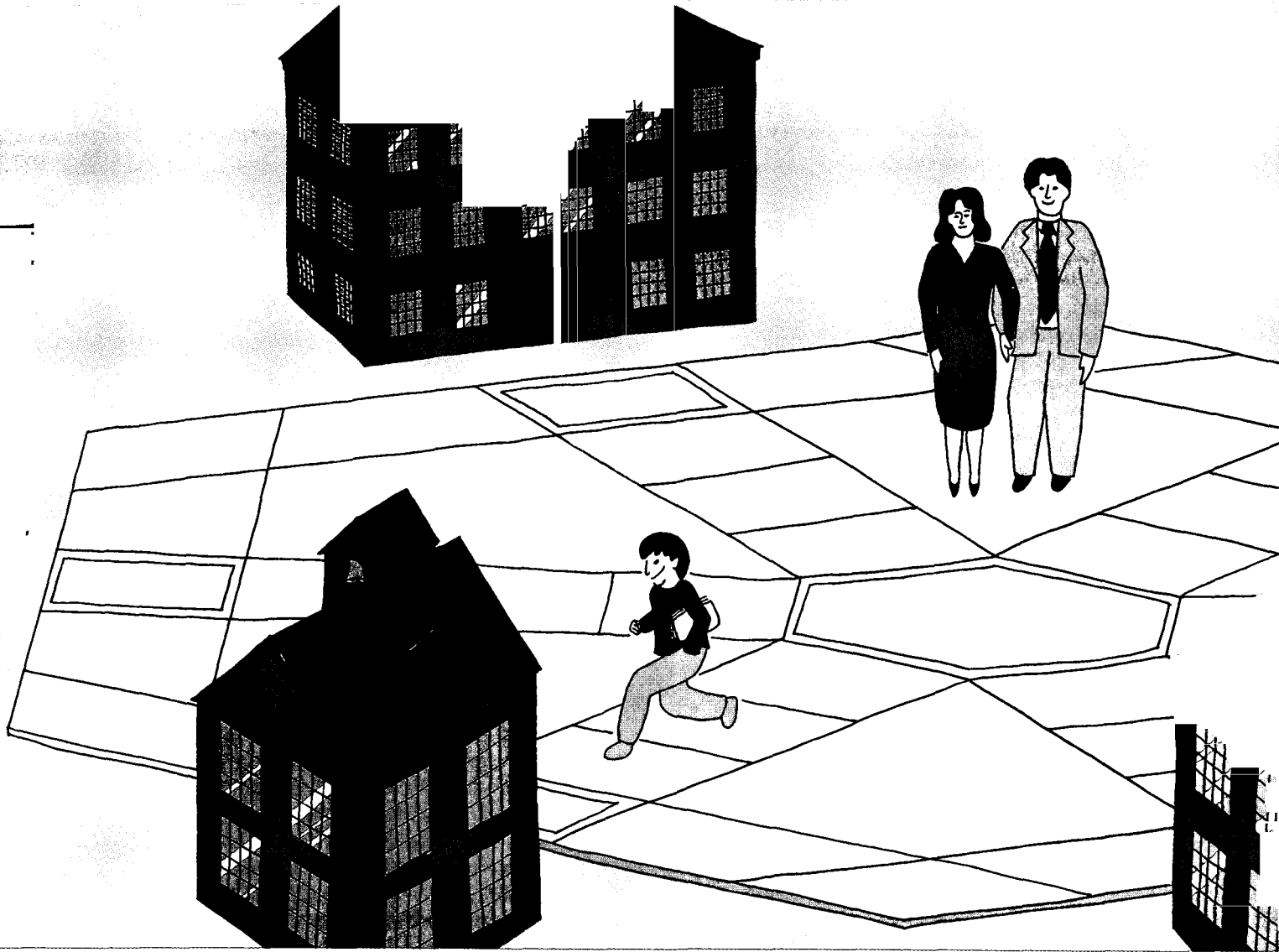
Existing private schools will be among those eligible to participate. Their participation should be encouraged, because they constitute a supply of already effective schools. Our own preference would be to include religious schools too, as long as their sectarian functions can be kept clearly separate from their educational functions. Private schools that do participate will thereby become public schools, as such schools are defined under the new choice system.

School districts can continue running their present schools, assuming those schools meet state criteria. But districts will have authority over only their own schools and not over any of the others that may be chartered by the state.

Funding

The state will set up a Choice Office in each district, which, among other things, will maintain a record of all school-age children and the level of funding — the “scholarship” amounts — associated with each child. This office will directly compensate schools based on the specific children they enroll. Public money will flow from funding sources (federal, state, and district governments) to the Choice Office and then to schools. At no point will it go to parents or students.

The state must pay to support its own Choice Office in each district. Districts may retain as much of their current governing apparatus as they wish — superintendents, school boards, central offices, and all their



staff. But they have to pay for them entirely out of the revenue they derive from the scholarships of those children who voluntarily choose to attend district-run schools. Aside from the governance of these schools, which no one need attend, districts will be little more than taxing jurisdictions that allow citizens to make a collective determination about how large their children's scholarships will be.

As it does now, the state will have the right to specify how much, or by what formula, each district must contribute for each child. Our preference is for an equalization approach that requires wealthier districts to contribute more per child than poor districts do and that guarantees an adequate financial foundation to students in all districts. The state's contribution can then be calibrated to bring total spending per child up to whatever dollar amount seems desirable; under an equalization scheme, that would mean a larger state contribution in poor districts than in wealthy ones.

While parents and students should be given as much flexibility as possible, we think it is unwise to allow them to supplement their scholarship amounts with personal funds. Such "add-ons" threaten to pro-

duce too many disparities and inequalities within the public system, and many citizens would regard them as unfair and burdensome.

Complete equalization, on the other hand, strikes us as too stifling and restrictive. A reasonable trade-off is to allow collective add-ons, much as the current system does. The citizens of each district can be given the freedom to decide whether they want to spend more per child than the state requires them to spend. They can then determine how important education is to them and how much they are willing to tax themselves for it. As a result, children from different districts may have different-sized scholarships.

Scholarships may also vary within any given district, and we strongly think that they should. Some students have very special educational needs — arising from economic deprivation, physical handicaps, language difficulties, emotional problems, and other disadvantages — that can be met effectively only through costly specialized programs. State and federal programs already appropriate public money to address these problems. Our suggestion is that these funds should take the form of add-ons to student scholarships. At-risk students would then be empow-

ered with bigger scholarships than the others, making them attractive clients to all schools — and stimulating the emergence of new specialty schools.

Choice Among Schools

Each student will be free to attend any public school in the state, regardless of district, with the student's scholarship — consisting of federal, state, and local contributions — flowing to the school of choice. In practice most students will probably choose schools in reasonable proximity to their homes. But districts will have no claim on their own residents.

To the extent that tax revenues allow, every effort will be made to provide transportation for students who need it. This provision is important to help open up as many alternatives as possible to all students, especially the poor and those in rural areas.

To assist parents and students in choosing among schools, the state will provide a Parent Information Center within its local Choice Office. This center will collect comprehensive information on each school in the district, and its parent liaisons will meet personally with parents in helping them judge which schools best meet their children's needs. The emphasis here will be on personal contact and involvement. Parents will be required to visit the center at least once, and encouraged to do so often. Meetings will be arranged at all schools so that parents can see firsthand what their choices are.

The Parent Information Center will handle the applications process in a simple fashion. Once parents and students decide which schools they prefer, they will fill out applications to each, with parent liaisons available to give advice and assistance and to fill out the applications themselves (if necessary). All applications will be submitted to the Center, which in turn will send them out to the schools.

Schools will make their own admissions decisions, subject only to nondiscrimination requirements. This step is absolutely crucial. Schools must be able to define their own missions and build their own programs in their own ways, and they cannot do that if their student population is thrust on them by outsiders.

Schools must be free to admit as many or as few students as they want, based on whatever criteria they think relevant — intelligence, interest, motivation, special needs — and they must be free to exercise their

own, informal judgments about individual applicants.

Schools will set their own "tuitions." They may choose to do so explicitly, say, by publicly announcing the minimum scholarship they are willing to accept. They may also do it implicitly by allowing anyone to apply for admission and simply making selections, knowing in advance what each applicant's scholarship amount is. In either case, schools are free to admit students with different-sized scholarships, and they are free to keep the entire scholarship that accompanies each student they have admitted. That gives all schools incentives to attract students with special needs, since these children will have the largest scholarships. It also gives schools incentives to

attract students from districts with high base-level scholarships. But no school need restrict itself to students with special needs, nor to students from a single district.

The application process must take place within a framework that guarantees each student a school, as well as a fair shot at getting into the school he or she most wants. That framework, however, should impose only the most minimal restrictions on the schools.

We suggest something like the following. The Parent Information Center will be responsible for seeing that parents and students are informed, that they have visited the schools that interest them, and that all applications are submitted by a given date. Schools will then be required to make their admissions decisions within a set time, and students who

are accepted into more than one school will be required to select one as their final choice. Students who are not accepted anywhere, as well as schools that have yet to attract as many students as they want, will participate in a second round of applications, which will work the same way.

After this second round, some students may remain without schools. At this point, parent liaisons will take informal action to try to match up these students with appropriate schools. If any students still remain unassigned, a special safety-net procedure — a lottery, for example — will be invoked to ensure that each is assigned to a specific school.

As long as they are not "arbitrary and capricious," schools must also be free to expel students or deny them readmission when, based on their own experience and standards, they believe the situation warrants it. This authority is essential if schools are to define and control their own organizations, and it gives students a strong incentive to live up to their side of the educational "contract."

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Governance and Organization

Each school must be granted sole authority to determine its own governing structure. A school may be run entirely by teachers or even a union. It may vest all power in a principal. It may be built around committees that guarantee representation to the principal, teachers, parents, students, and members of the community. Or it may do something completely different.

The state must refrain from imposing *any* structures or requirements that specify how authority is to be exercised within individual schools. This includes the district-run schools: the state must not impose any governing apparatus on them either. These schools, however, are subordinate units within district government — they are already embedded in a larger organization — and it is the district authorities, not the schools, that have the legal right to determine how they will be governed

More generally, the state will do nothing to tell the schools how they must be internally organized to do their work. The state will not set requirements for career ladders, advisory committees, textbook selection, in-service training, preparation time, homework, or anything else. Each school will be organized and operated as it sees fit.

Statewide tenure laws will be eliminated, allowing each school to decide for itself whether or not to adopt a tenure policy and what the specifics of that policy will be. This change is essential if schools are to have the flexibility they need to build well-functioning teams. Some schools may not offer tenure at all, relying on pay and working conditions to attract the kinds of teachers they want, while others may offer tenure as a supplementary means of compensating and retaining their best teachers.

Teachers, meantime, may demand tenure in their negotiations (individual or collective) with schools. And, as in private colleges and universities, the best teachers are well positioned to get it, since their services will be valued by any number of other schools. School districts may continue to offer districtwide tenure, along with transfer rights, seniority preference, and whatever other personnel policies they have offered in the past. But these policies apply only to district-run schools and the teachers who work in them.

Teachers will continue to have a right to join unions and engage in collective bargaining, but the legally prescribed bargaining unit will be the individual

school or, as in the case of the district government, the larger organization that runs the school. If teachers in a given school want to join a union or, having done so, want to exact financial or structural concessions, that is up to them. But they cannot commit teachers in other schools, unless they are in other district-run schools, to the same things, and they must suffer the consequences if their victories put them at a competitive disadvantage in supplying quality education.

The state will continue to certify teachers, but requirements will be minimal, corresponding to those that many states have historically applied to private schools. In our view, individuals should be certified to

teach if they have a bachelor's degree and if their personal history reveals no obvious problems. Whether they are truly good teachers will be determined in practice, as schools decide whom to hire, observe their own teachers in action over an extended period of time, and make decisions regarding merit, promotion, and dismissal.

The schools may, as a matter of strategy, choose to pay attention to certain formal indicators of past or future performance, among them: a master's degree, completion of a voluntary teacher certification program at an education school, or voluntary certification by a national board. Some schools may choose to require one or more of these, or perhaps to reward them in various ways. But that is up to the schools, which will be able to look anywhere for good

teachers in a now much larger and more dynamic market.

The state will hold the schools accountable for meeting certain procedural requirements. It will ensure that schools continue to meet the criteria set out in their charters, that they adhere to nondiscrimination laws in admissions and other matters, and that they collect and make available to the public, through the Parent Information Center, information on their mission, their staff and course offerings, standardized test scores (which we would make optional), parent and student satisfaction, staff opinions, and anything else that would promote informed choice among parents and students.

The state will not hold the schools accountable for student achievement or other dimensions that call for assessments of the quality of school performance. When it comes to performance, schools will be held accountable from below, by parents and students who directly experience their services and are free to choose. The state will play a crucial supporting role

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here in monitoring the full and honest disclosure of information by the schools — but it will be only a supporting role.

Choice as a Public System

This proposal calls for fundamental changes in the structure of American public education. Stereotypes aside, however, these changes have nothing to do with “privatizing” the nation’s schools. The choice system we outline would be a truly public system — and a democratic one.

We are proposing that the state put its democratic authority to use in creating a new institutional framework. The design and legitimation of this framework would be a democratic act of the most basic sort. It would be a social decision, made through the usual processes of democratic governance, by which the people and their representatives specify the structure of a new system of public education.

This framework, as we set it out, is quite flexible and admits of substantial variation on important issues, all of them matters of public policy to be decided by representative government. Public officials and their constituents would be free to take their own approaches to taxation, equalization, treatment of religious schools, additional funding for disadvantaged students, parent add-ons, and other controversial issues of public concern, thus designing choice systems to reflect the unique conditions, preferences, and political forces of their own states.

Once this structural framework is democratically determined, moreover, governments would continue to play important roles within it. State officials and agencies would remain pivotal to the success of public education and to its ongoing operation. They would provide funding, approve applications for new schools, orchestrate and oversee the choice process, elicit full information about schools, provide transportation to students, monitor schools for adherence to the law, and (if they want) design and administer tests of student performance. School districts, meantime, would continue as local taxing jurisdictions, and they would have the option of continuing to operate their own system of schools.

The crucial difference is that direct democratic control of the schools — the very *capacity* for control, not simply its exercise — would essentially be eliminated. Most of those who previously held authority over the schools would have their authority permanently with-

drawn, and that authority would be vested in schools, parents, and students. Schools would be legally autonomous: free to govern themselves as they want, specify their own goals and programs and methods, design their own organizations, select their own student bodies, and make their own personnel decisions. Parents and students would be legally empowered to choose among alternative schools, aided by institutions designed to promote active involvement, well-informed decisions, and fair treatment.

Democracy and Educational Progress

We do not expect everyone to accept the argument we have made here. In fact, we expect most of those who speak with authority on educational matters, leaders and academics within the educational community, to reject it. But we will regard our effort as a success if it directs attention to America’s institutions of democratic control and provokes serious debate about their consequences for the nation’s public schools. Whether or not our own conclusions are right, the fact is that these issues are truly basic to an understanding of schools, and they have so far played no part in the national debate. If educational reform is to have any chance at all of succeeding, that has to change.

In the meantime, we can only believe that the current “revolution” in public education will prove a disappointment. It might have succeeded had it actually been a revolution, but it was not and was never intended to be, despite the lofty rhetoric. Revolutions replace old institutions with new ones. The 1980s reform movement never seriously thought about the old institutions and certainly never considered them part of the problem. They were, as they had always been, part of the solution — and, for that matter, part of the definition of what democracy and public education are all about.

This identification has never been valid. Nothing in the concept of democracy requires that schools be subject to direct control by school boards, superintendents, central offices, departments of education, and other arms of government. Nor does anything in the concept of public education require that schools be governed in this way. There are many paths to democracy and public education. The path America has been trodding for the past half-century is exacting a heavy price — one the nation and its children can ill afford to bear, and need not. It is time, we think, to get to the root of the problem. □

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Europe 1992: Opportunities and Challenges

Gary Clyde Hufbauer

Japanese-American trade relations may grab most of the headlines these days. But as the European Community edges closer to a realization of a single market in 1992, more attention is turning to the opportunities — and the challenges — likely to face Americans seeking to do business there.

Combined, the 12 members of the European Community are now America's largest market for exports. In 1988 they bought 24 percent of U.S. exports, more than the 22 percent share Canada bought and substantially more than the 12 percent share Japan purchased (see table 1, page 14). Moreover, the EC nations buy high-technology exports. In 1988 some 45 percent of U.S. exports to Europe were classified as high-tech goods; only 29 percent of U.S. exports to Japan were in that category.

Europe is also a major destination for U.S. investment abroad. In fact, the share of the U.S. direct foreign investment stock located in the 12 member countries has risen from about 18 percent in 1960 to nearly 40 percent in 1988 (see table 2, page 14). And the stock of U.S. direct investment in the EC countries has grown substantially faster than the value of exports: in 1988 sales of U.S.-owned affiliates in the Community came

to \$620 billion, compared with just \$76 billion for U.S. exports to the EC countries.

How will American companies operating in Europe fare once the single market is in place? Do the details of Europe 1992 add up to bad news for American exports?

From an investment perspective, Europe 1992 is highly attractive to American companies. It is "Opportunity Europe," not "Fortress Europe." European nations almost always welcome foreign investors, the EC policy on competition is favorable to newcomers, and foreign firms established within Europe enjoy numerous opportunities to participate in shaping the internal market. Whatever Europe 1992 may hold for U.S. exports, it holds great promise for General Motors, American Telephone and Telegraph, Merck, International Business Machines, and a long list of other U.S. firms with a strong presence in Europe.

Based on past experience, it seems likely that Brussels and Washington will resolve specific transatlantic trade and investment issues, such as the definition of local content and rules of origin or the procedures for setting technical standards, as they come up. But it remains to be seen whether U.S. high-tech exports are gradually eroded as European firms erect new facilities in Europe, and whether EC policy materially alters competitive processes in the high-tech arena.

Beyond these immediate issues, European market integration raises two broader questions for the United States: What challenges will a powerful and unified

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Table 1. U.S.-EC Merchandise Trade

Year	U.S. Exports to EC		U.S. Imports from EC		Trade Balance
	Billions of dollars	Percent of U.S. exports	Billions of dollars	Percent of U.S. imports	Billions of dollars
1960	\$ 6.0	29.2%	\$3.5	24.1%	\$ 2.5
1965	7.9	28.8	5.2	24.2	2.7
1970	12.3	28.5	9.7	24.3	2.6
1975	25.9	24.1	17.8	18.4	8.1
1980	58.7	26.2	37.9	15.2	20.8
1985	49.0	22.7	67.8	20.1	-18.8
1988	75.9	23.6	84.9	19.2	-9.0

Note: For consistency, the figures comprise data from all 12 current EC members for all years. Exports are valued f.a.s.; imports are valued on a customs value basis.

Sources: *Economic Report of the President*, January 1989; U.S. Census Bureau, *Statistical Abstract of the United States*; and U.S. International Trade Administration, *United States Trade Performance in 1988*.

Table 2. U.S. Direct Investment in the EC

(in billions of dollars)

Item	1960	1970	1980	1985	1988
Direct investment in the EC					
Petroleum industry	\$ 1.6	\$ 4.7	\$ 17.2	\$ 16.4	\$ 15.7
Manufacturing	3.6	12.6	43.4	43.7	65.4
Banking, finance, insurance, real estate	na	na	8.9	14.2	27.5
Other industries	0.8	3.5	10.3	9.8	17.9
All industries	6.0	20.9	79.9	84.0	126.5
Total U.S. direct investment	\$ 32.7	\$ 78.1	\$ 213.4	\$ 229.7	\$ 326.9
Percentage of total invested in EC	18.3%	26.7%	37.4%	36.4%	38.7%
Estimated sales by U.S.-owned affiliates in EC	\$ 29.0	\$ 102.0	\$ 392.0	\$ 412.0	\$ 620.0

Note: Sales for 1985 were estimated to be 94 percent of sales reported by nonbank foreign affiliates of U.S. firms operating in Europe. The 94 percent factor represents the proportion of U.S. affiliate employment in Europe accounted for by employment in the EC. For other years sales were estimated as 4.9 times the U.S. direct investment in Europe (based on the 1985 ratio).

Source: U.S. Department of Commerce, *Survey of Current Business*.

Europe pose for the United States in world markets? How will a unified Europe shape American attitudes toward our own economic institutions and our role in shaping international economic policy?

Specific Issues

Questions like these have little historical precedent and are not traditionally the subject of economic negotiation. But before we discuss them in detail let us look at five major specific Europe 1992 issues now on the U.S.-Community negotiating agenda.

Reciprocity

The EC insists that it will not automatically extend the benefits of the internal market to outsiders unless required to do so by existing international agreements. Neither the General Agreement on Tariffs and Trade (GATT) nor any other agreement presently compels the EC to unilaterally extend the benefits of the single banking license, open procurement, mutual recognition of technical standards, or pan-European TV programming. In these areas the EC will ask third countries for "reciprocity."

How does reciprocity work? In the context of GATT negotiations, reciprocity has historically meant that each trading partner extends concessions that ensure new access to its markets equivalent to the new access its exports gain in foreign markets. The EC challenges this traditional formulation of reciprocity, especially in the financial service and high-tech sectors where Japanese firms are prominent. The EC is not prepared to allow Japanese banks, for example, to increase their share of the European banking market from a base of 10 percent to a new level of 12 percent if EC banks gain just 2 percent of the Tokyo market starting from zero. Nor is the EC prepared to buy unlimited quantities of Japanese semiconductors when Siemens and Philips N.V. can barely gain a foothold in the Japanese market.

In the context of the 1992 program, the EC has reinterpreted reciprocity to mean that in a foreign market an EC firm should enjoy both national treatment — the same treatment that a government accords to its domestic firms — plus effective access to that market. The test of meaningful reciprocity comes down to an ad hoc combination of rules and performance.

The rules are usually phrased in terms of permissible tariff and quota barriers, plus agreed implementation of the national treatment standard. Performance is often defined in terms of the market share that EC firms acquire in the foreign country, whether through exports or investment. The EC position calls to mind American enthusiasm for a "level playing field," forcefully voiced by Representative Richard A. Gephardt in the 1988 presidential campaign and expressed in various provisions of the Omnibus Trade and Competitiveness Act of 1988.

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The reciprocity question has surfaced in several EC directives. Proposals on the access of third-country firms to banking and life insurance markets, the benefits of liberalized capital flows, exchange of credit information, and public procurement have all incorporated reciprocity clauses.

So far the greatest stir about reciprocity requirements was created by the first version of the Second Banking Directive. It was feared, perhaps wrongly, that the EC would require "mirror image" reciprocity and that the mirror image test would have indirectly blocked the access of U.S. banks to the enlarged EC financial market. Traditional U.S. separation between banking and commerce, required by the Glass-Steagall Act, and geographic restrictions on banking, contained in the McFadden Act, prohibit banks operating in the United States from providing the full range and geographic scope of financial services that banks operating in Europe can offer. Given congressional resistance to amending Glass-Steagall and especially McFadden, the United States was in no position to grant mirror image reciprocity to European banks. Eventually, however, the European Commission declared that it is not, in fact, seeking mirror image reciprocity from the United States, but instead wants European firms to enjoy "market access and competition opportunities

comparable to those granted by the Community." The EC has not lost sight of Glass-Steagall or McFadden, but Community officials have all but publicly said that the immediate target of their reciprocity test is Japan, not the United States.

As this episode suggests, the EC reciprocity principle will be pragmatically adapted to the circumstances of each sector. For example, in high-tech sectors, it will probably come to mean that EC subsidiaries of U.S. companies will be excluded from EC-sponsored research consortia, such as RACE, Esprit, and JESSI, if EC companies continue to be excluded from U.S. consortia such as Sematech or from research sponsored by the U.S. Department of Defense. In a recent test case, practically at the same moment that IBM announced a joint memory chip program with Siemens, IBM was also admitted to JESSI; and a few weeks later, Sematech and JESSI agreed to join forces in two specific projects. In the end, Japan is likely to become the target of EC high-tech reciprocity requirements: Japan will be called upon to open private and public procurement of high-tech goods and services, to facilitate European investment in Japan, and to ensure the transfer of Japanese technology to Europe.

National Quotas

Quotas against products shipped from other member states are obviously inconsistent with the principles of an integrated single market. Thus a critical question is how the EC will phase out the 700-odd national quantitative restrictions that limit third-country suppliers and that are backed up, both for foreign imports and for intra-EC shipments, by national border controls authorized under Article 115 of the EC's charter, the Treaty of Rome. Of these quotas, about 70 percent limit textile and apparel imports under the Multifiber Arrangement (most cover imports from developing countries), and about 26 percent limit other industrial goods (most cover imports from Eastern Europe and the Soviet Union; with recent developments, these are likely to be liberalized). France and Italy account for the great majority of Article 115 actions against textiles, apparel, and other industrial goods.

Three policy options are available: transformation of national quantitative restrictions into EC-wide quotas; unilateral abandonment of quantitative restrictions; or abandonment of quantitative restrictions coupled with the mobilization of alternative trade policy measures designed to "safeguard" ailing industries and to thwart "unfair" foreign practices. The policy choice will largely depend on the sensitivity of the protected industries. The automobile industry is a likely candidate for EC-wide "soft" monitoring; the textile and apparel industry, for "hard" quotas. Other industries are likely to find their quotas abandoned entirely or replaced with less-sweeping trade policy measures.

Auto quotas present a particularly interesting situation. Spain virtually bars imports of Japanese cars. France and Italy limit Japanese auto imports to under 3 percent of the market; Britain, to 11 percent. But there are no restrictions in Germany, the Benelux nations, and several smaller countries (in these countries the Japanese market share ranges up to 40 percent). Italy, Spain, and Portugal can appeal to Article 115 as justification for restricting intra-EC auto shipments, but the restrictions imposed by other member states are grey area measures with no legal sanction. European motor industry leaders from Germany, Italy, and France, together with Ford of Europe, have demanded transitional EC-wide controls on the sale of Japanese cars through the mid-1990s and relaxation only in the context of true reciprocity from Japan.

Consistent with these views, it seems that auto restrictions will initially be transformed into EC-wide monitoring of Japanese market penetration over the period 1992 to 1997. Progressive relaxation would require parallel liberalization by Japan. Auto sales by Japanese transplant firms located in Europe would be taken into account in the monitoring exercise but not actually included under the import column — a distinction without a difference.

This whole approach, with the implied foundation of understandings between Japanese producers and the Community, could endanger the potential growth of U.S. automobile exports to Europe shipped from Japanese transplant firms in Ohio (Honda) and Tennessee (Nissan). In fact, the proposed EC monitoring program assumes that exports to Europe from Japanese transplant firms in the United States will remain small — a forecast that has the quality of self-fulfilling prophecy.

The policy challenge for the United States is to become a vigorous and effective voice for Nissan and Honda as exporters of autos from the United States to Europe. The United States has the law on its side: EC limitations on U.S.-made Hondas would be illegal under GATT. But legal niceties can quickly dissolve in the face of Community understandings with Japanese producers. U.S. commercial diplomacy must engage not only Brussels but also Tokyo and the parent auto companies in Japan. Further, the United States will have to make its own concessions. Is the United States prepared, for example, to reconsider its discriminatory fleet mileage regulations — which bear heavily on European luxury car imports — in order to boost Japanese transplant exports to the European market?

Technical Standards

The eventual harmonization of European technical standards, backed by common testing and certification procedures, is a key ingredient in creating an integrated European market. Harmonization of standards will be achieved in two ways: through the adop-



tion of directives that set essential requirements in critical areas related to public health, safety, and the environment, and through Darwinian selection mechanisms growing out of mutual recognition. To be effective, harmonization of standards must also be supported by EC-wide testing and certification procedures (as in pharmaceuticals), or by mutual recognition of national testing and certification procedures.

At one time it was thought that technical harmonization would offer pluses and minuses for U.S. companies. On the plus side, large U.S. firms established in Europe might enjoy a competitive advantage under harmonized conditions, since they are accustomed to operating on a continental scale. That is particularly true of automobile, telecommunications, and pharmaceutical firms. In addition, all U.S. firms would enjoy cost savings after 1992, because they could market their products throughout Europe by meeting one set of standards rather than 12. On the minus side, it was feared that exclusion from EC standard-setting procedures could work to the disadvantage of U.S. companies, particularly those exporting high-tech products to Europe.

U.S.-Community talks, prompted by Commerce Secretary Robert Mosbacher, have already blunted the downside concerns. The American National Standards Institute will exercise a voice in the EC standards boards — the European Committee for Standardization and the European Committee for Electrotechnical Standardization — and vice versa. In addition, individual U.S. companies — especially larger companies — already enjoy a variety of access routes to the EC process. For now, the issue of the right to be heard in the formulation of technical standards is relatively calm.

A new technical standards issue is looming over the horizon. In a 1979 decision involving *cassis de Dijon*, a French liqueur, the European Court of Justice ruled that a product legally produced and sold in one member country could not be excluded from a second country's market, even though the product did not meet the consumer protection standards of the second country. The decision, however, does not require Italy, for example, to accept U.S. products that have not been tested and certified in Italy, even though the products may meet Italian quality standards.

The United States and the Community have not yet agreed on mutual recognition of testing and certification. The EC contends that such an agreement would put the cart before the horse: mutual recognition of standards should precede mutual recognition of testing and certification. In response, some U.S. legislators are insisting that the United States should no longer accept self-certification by EC firms unless the EC is prepared to accept U.S. self-certification. This disagreement promises to ensure that national testing and certification procedures will continue to hamper trade.

Rules of Origin and Local Content

Rules of origin and local content are two mind-numbing concepts that, when linked in certain ways, can create almost impenetrable trade barriers. Rules of origin define the patrimony of individual components. Local content refers to the percentage of value embodied in a good or service made within a geographic area, for example, the EC or the European Free Trade Association (EFTA). Together these rules determine, in some circumstances, whether a product is exempt from residual national quotas, is eligible for government procurement, is acceptable under EC-EFTA and other preference schemes, or escapes certain antidumping duties.

The coupling of stringent local content requirements with tight rules of origin can effectively exclude products made outside the Community. The local content issue has created a transatlantic melodrama in TV programming, where the EC Broadcast Directive gives national authorities permission to require 50 percent European content. Rules of origin coupled with local content requirements have been hotly debated in the context of EC antidumping laws applied to semiconductors.

In the case of semiconductors, the EC has insisted that the process of diffusion — laying the circuit on the chip — must take place within Europe to meet the EC rule of origin. (This particular rule represents a new interpretation of the general EC rule that assigns a component EC patrimony if the "last substantial transformation occurred in a member state"). The diffusion rule was originally aimed at dumping by Japanese firms — more particularly at so-called screwdriver plants, Japanese-owned assembly plants located in Europe and designed to avoid EC antidumping duties on the final product simply by importing and assembling the components.

But the diffusion rule, coupled with the agreement by Japanese firms to ensure at least 40 percent content from non-Japanese sources, quickly affected U.S. semiconductor exporters. Computer manufacturers replaced U.S.-made semiconductors with European-made semiconductors, supposedly because of the diffusion rule. For example, NEC Corporation stopped buying U.S.-made computer chips for the circuit boards it puts into its computer printers assembled in Great Britain.

The impact on investment has been equally dramatic: Intel is building a \$400 million semiconductor plant near Dublin, almost entirely to meet the new EC rule of origin. The map of Europe is already dotted with Japanese semiconductor facilities, in large part for the same reason. A GATT panel has now challenged the EC screwdriver plant rules. But plant location and investment decisions have already been made. This is the outstanding example of a seemingly small change in technical rules triggering production

*Will the United States
override its Buy American
provisions? Will the United
States open its own TV
and radio broadcast systems
to foreign ownership?
These questions contain
all the makings of
a transatlantic trade
bargain of immense
commercial dimensions.*

decisions that, in time, will very likely shift the balance of the world's trade in semiconductors.

Government Procurement

The multibillion-dollar EC procurement market — some 15 percent of gross domestic product, or about \$700 billion, including purchases by state-owned enterprises — has traditionally been closed, not only to U.S. suppliers but also to suppliers from other member states. Member states have a long tradition of favoring national champion firms — those that are first in size and technology — through explicit and implicit "Buy National" policies. Between 1984 and 1988 the Deutsche Bundespost awarded 99.5 percent of its contracts to German firms, for example, while France, the United Kingdom, the Netherlands, and Portugal gave 100 percent of their telecommunications contracts to their own national firms. Overall, less than 2 percent of government contracts go to firms in other member states.

In light of this tradition, the failure of previous EC efforts to harmonize government procurement regulations and to open procurement markets is not surpris-

ing. Ever since the decree breaking up AT&T was issued in 1982, the United States has had an increasingly open telecommunications market. Correspondingly, the closed EC procurement market has seemed more and more anomalous to Congress and U.S. trade officials. The Trade Act of 1988 instructed the U.S. Trade Representative to open foreign telecommunications markets, with a special view toward Europe and Japan.

Meanwhile, the European Commission has formulated a directive that would do two things when public procurement is finally opened in the four sectors still exempt from the EC requirement of open procurement (energy, telecommunications, transportation, and water supply). It enables public authorities to reject outright any bid that does not meet a 50 percent EC content requirement, and it imposes a Buy European preference margin of 3 percent on bids that do not meet the local content requirement but, at the option of the public authority, are not rejected. The 3 percent margin was deliberately set at one-half the U.S. federal Buy American preference margin and will self-destruct on a bilateral basis when another country (say the United States) eliminates its own Buy National preference at all levels of government, or on a multinational basis if preferences are negotiated away in the Uruguay Round.

The European market is already the biggest export market for U.S. telecommunications suppliers. In 1988 the United States exported \$1.3 billion of apparatus to the EC, compared with \$600 million to Japan and \$800 million to Canada. But American exports to Europe could be far larger. The EC telecommunications equipment market, which amounted to \$17.5 billion in 1986, is expected to grow 67 percent by 1995 (by comparison, the U.S. market is expected to grow only 23 percent).

Even more dramatic is the prospective growth in telecommunications services, an area of decided U.S. strength. If European growth is coupled with the abolition of preferential government procurement and with genuine national treatment of foreign firms, the market potential for U.S. suppliers of telecommunications goods and services would be enormous.

Will the United States override its Buy American provisions — at the federal and at the state and local levels — by subjecting a wide range of public purchases to the GATT Code on Government Procurement (the code requires that bidding be open to all code members) so that U.S. companies can in turn gain access to the EC telecommunications market? Will the United States extend the GATT code to its regulated monopolies such as the Baby Bells (the regional Bell operating companies)? Will the United States open its own TV and radio broadcast systems to foreign ownership? These questions contain all the makings of a transatlantic trade bargain of immense commercial dimensions.

Table 3. Changes in Distribution of the Top 100 Industrial Corporations

	Total Sales (in billions)		Number of Firms		Percent of Top 100 Sales	
	1970	1988	1970	1988	1970	1988
<i>All industries</i>						
EC	\$ 82	\$ 768	26	33	24%	33%
U.S.	236	1,044	64	42	69	45
Japan	21	336	8	15	6	15
Other	4	169	2	10	1	7
Total	\$343	\$2,317	100	100	100%	100%
<i>Autos</i>						
EC	\$ 15	\$ 18	5	7	25%	27%
U.S.	41	309	3	8	67	47
Japan	5	158	2	4	8	24
Other	na	16	na	1	na	2
Total	\$ 60	\$ 664	10	20	100%	100%
<i>Telecommunications, computers, semiconductors</i>						
EC	\$ 12	\$ 96	4	4	26%	25%
U.S.	25	81	5	3	56	21
Japan	8	152	3	6	18	39
Other	na	57	na	3	na	15
Total	\$ 45	\$ 386	12	16	100%	100%

Notes: In 1970 other industrial corporations included one in Switzerland and one in Australia. In 1988 the other category included one in Brazil, one in Kuwait, one in Mexico; two in South Korea (both in the telecommunications category), two in Sweden (one in the auto category; one in the telecommunications category), and three in Switzerland. The Canadian and European subsidiaries of certain U.S. firms are classified under the United States, for example, General Motors of Canada and Ford Motor (United Kingdom). As a result, Canada is not credited as the home country of any of the top 100 industrial corporations.

Source: *Fortune*.

Table 4. Changes in Distribution of the Top 50 Banks

	Total Assets (in billions)		Number of Banks		Percent of Top 50 Assets	
	1970	1988	1970	1988	1970	1988
EC	\$ 156	\$2,258	16	17	31%	29%
U.S.	188	484	15	4	38	6
Canada	35	82	4	1	7	1
Japan	89	4,662	11	24	18	59
Other	28	422	4	4	6	5
Total	\$ 496	\$7,908	50	50	100%	100%

Note: In 1970 the other category included three banks in Switzerland and one in Brazil; in 1988 it included two banks in Switzerland, one in China, and one in Hong Kong.

Sources: *Fortune*, *Business Week*.

Broader Challenges

A part from these and other specific issues that will inevitably arise issue by issue and industry by industry, Europe 1992 raises broader questions for the United States. Broad questions seldom lend themselves to negotiation, but they often pose major challenges for U.S. public policy.

Changing League of Giants

The single European market could well spawn a new generation of European industrial and banking giants and put renewed pressure on U.S. membership in the league of top firms. Should this be a matter of concern? Not to those who believe wholeheartedly in atomistic competition and small entrepreneurs. But most observers would agree that top firms enjoy a decided advantage in financing the huge research and development costs associated with leading-edge technology, carrying the losses incurred in bringing new products to market, reaping economies of scale, and financing industrial restructuring. In a similar vein, giant banks can take on greater risks. Indeed, in Europe and Japan, giant banks underwrite entire corporate groups. Seen in this light, the prospective decline of U.S. business in the ranks of the world's top 100 industrial firms and top 50 banks cannot be dismissed as an inconsequential scene in the larger drama of international competition.

Between 1970 and 1988 the share of sales of the world's top 100 industrial firms accounted for by U.S.-based firms dropped from 69 percent to 45 percent; EC firms rose from 24 to 33 percent; and Japanese firms rose from 6 to 15 percent (see table 3, page 20). The Japanese rise in automobiles, telecommunications, computers, and semiconductors was especially pronounced. Likewise, the U.S. share of assets of the top 50 banks plummeted from 38 percent to 6 percent. EC banks also lost ground, dropping from 31 to 29 percent, while Japanese banks rose from 18 to 59 percent (see table 4, page 20).

It seems highly likely that European firms will now join Japanese firms in pushing U.S.-based firms further down in the rankings of industrial and financial giants. And it is all but certain that European direct investment in the United States, now \$149 billion at book value, will grow much faster than U.S. direct investment in Europe, now \$127 billion at book value. As a consequence, sales by European firms operating in the U.S. market, which already exceed \$600 billion, will expand rapidly. All in all, in the 1990s European giants will vigorously compete with their U.S. counterparts, not only in the American market, but also on a world scale.

This prospective decline of American giants raises a follow-on policy question: should the United States further relax its antitrust policy and revamp its bank-

ing policy so that top U.S. firms can combine and better compete in world markets? The economic rise of Japan and Europe has clearly furnished both the occasion and inspiration for a fundamental reconsideration of U.S. attitudes toward giant corporations. It is often said that, with the globalization of world markets, U.S. firms will be forced by their foreign rivals to behave like competitors. In the new world of global competition, the Sherman Act and the Glass-Steagall Act, it is said, only serve to handicap U.S. firms.

The irony of this argument is that EC policies are now generally as pro-competitive as those of the United States and at least as likely to remain that way as are U.S. policies. In most industries, European giants are significantly smaller than their U.S. rivals (the one conspicuous exception is banking). Repeal of the Glass-Steagall and McFadden Acts, the first and critical step toward a nationwide U.S. banking system, may be long overdue and may even be accelerated by the single market. But it is doubtful that either the United States or Europe wants to promote industrial groups on a scale to match the Japanese *keiretsu*.

Indeed, in the mid- to late-1990s, the Community and the United States could conceivably agree to coordinate their antitrust policies and to jointly evaluate transatlantic corporations engaged in merger or strategic alliances. American and European authorities may come to the view that competition policy must acquire a global dimension, as General Motors, Siemens, Hitachi, and many other firms criss-cross the world with acquisitions and alliances. Otherwise the consumer gains from free trade could easily be lost as giant firms engage in informal market sharing on a global basis.

Weakening Ties

Nearly 20 years ago, in his classic book *Sovereignty at Bay*, Raymond Vernon wrote of a world of attenuated identification between multinational firms and their home states. Although Vernon's predictions have not come to pass, a significant offshoot of Europe 1992 will be further disassociation between firms and nations, as transatlantic and transpacific mergers and alliances redraw the map of global business. "What's good for the country is good for General Motors, and vice versa," Charles E. Wilson, the president of General Motors, declared when he was appointed secretary of defense in 1953. Wilson's words were, of course, never entirely accurate; but they were far more accurate in 1953, when nearly all of GM's profits originated in North America, than in 1988, when North America accounted for 44 percent of GM's net income, Europe for 37 percent, and other areas for 19 percent.

The disassociation between giant firms and their mother countries raises new questions for policymakers. Already Du Pont is regarded by statisticians as a Canadian company, since Seagrams holds 20 percent of Du Pont common shares. But is Du Pont really

Canadian? After all, Seagrams exercises little management control in practice. Similar confusion of national patrimony will beset many large firms by the year 2000. It will then be harder to call Siemens a European company, Honda a Japanese company, or IBM an American company.

The weakening ties between firms and states call into question the wisdom of a competitive strategy based on national champions. Like baseball teams of today, national champions of tomorrow may prove surprisingly "disloyal" to their local supporters.

The disassociation trend raises other questions. U.S. automotive export interests are now more strongly linked to the welfare of Japanese transplants than to the welfare of Ford or GM. In the face of such changes, how quickly will U.S. policy officials come to evaluate a range of economic measures — trade policy, tax proposals, environmental measures — on a strictly geographic criterion? Will the public policy pendulum swing so far that multinational enterprises with global interests lose their clout as a major integrating force in the world economy? Or will the temptations of geographic nationalism quickly yield to transatlantic (and perhaps transpacific) consultation on a range of economic policies previously thought to fall squarely within the domain of sovereign economic decisions?

Following the Leader

The United States has always regarded Japan as an exotic country, separated from North America by great cultural and linguistic differences. Japanese successes in industry, education, and other aspects of life have prompted little U.S. emulation. The same cultural and linguistic gap simply does not exist between the United States and Europe. Instead, the United States has often imitated European experiments in economic management, and vice versa. To cite just two examples: Bismarck's system of mandatory health and old age pensions eventually became part of the social contract not only throughout Europe but also in the United States; Reagan's supply-side tax policy was quickly and widely adopted within Europe. Thus if European high-tech research consortia succeed, or if Europe manages its pharmaceutical testing program or worker retraining system decisively better than the United States manages its version, Washington will probably become an attentive audience.

In broad terms, the direction of a successful European experiment can be foretold. Led by Prime Minister Margaret Thatcher, Europe is still on a cycle of deregulation and disintervention. But however hard Thatcher tries to rewrite the story, Europe is likely to remain more interventionist than the United States across a range of economic policies: greater resistance to hostile takeover bids, more job security, more health care, wider environmental controls, and a much larger public sector. This difference between the EC and the United States follows

from the fact that the EC governance represents a permanent coalition of socialists, liberals, and conservatives. If Europe prospers under such conditions — whether because of, or in spite of, state intervention — the tendency to duplicate aspects of European social and economic legislation will be very strong in the United States. On the other hand, if Europe turns in a sluggish economic performance, it is likely that Brussels will pay more attention to U.S. policy innovations.

Custodian of the System

Between the 1940s and the 1980s the United States regarded itself as the custodian of the international economic system. It is now shedding its patriarchal role, as the burdens of external and internal deficits have been coupled with lagging productivity and weakening technological leadership. In this era of changing roles, the real questions for the 1990s are whether Brussels will become the titular custodian of the international economic system, whether a Washington-Brussels alliance will emerge, or whether a true U.S.-EC-Japan triumvirate will be formed.

In financial matters, a triumvirate seems likely, given Japanese financial strength and the already close coordination between the United States, Japan, and West Germany on macroeconomic questions. But in trade and competition policy, it is not out of the question that Brussels could become the leader. Already Europe is the most outward-looking of the major blocs in trade terms, and it could adopt the most pro-competitive policies. In many product lines, European technical standards could become the world norm. The Community has seized the initiative in restructuring Eastern Europe. Judging by the British experience after the Napoleonic Wars and the American experience after World War II, one can predict that the strongest and most market-oriented nation is typically the most dedicated internationalist. So Brussels could take the lead in shaping international commercial policy.

My own guess is that the United States will not quietly accept a secondary role, and that since America and Europe share a common outlook on the design and direction of the world trading and competition systems, a Washington-Brussels alliance will emerge. While Brussels holds sway over a larger trading bloc, Washington policymakers enjoy one great advantage: they are able to design policy initiatives with far greater speed and flexibility than their EC counterparts, because they are not constrained by the consensus system that dominates policy formation in the Community. If it emerges in the 1990s, a transatlantic commercial alliance will work best not by striking high profile bilateral deals that will only arouse resentment in other countries, but by channeling its efforts through the framework of international institutions, especially GATT and the Organization for Economic Cooperation and Development. □

The political revolution in Eastern Europe defied prediction. No one had dared to imagine that such radical political changes could be so swift, so decisive, and so orderly in the absence of anticipation. No one is on record as having foreseen it all, and none of the participating actors appears to have designed exactly what happened. Yet with the wonderful power of retrospect, we can appreciate that the events in Eastern Europe were not entirely a spontaneous accident. They reflect fundamental changes in security and economic conditions that have been long in gestation.

The situation these conditions have created can be summarized in simple terms. Military forces have developed to the point that agreed regulation is an imperative for reasons of safety and efficiency. Economic activity has been internationalized to an extent that severely threatens the development of any economy that remains isolated from the industrial world. An unusually decisive political leadership in the Soviet Union has understood both trends and has made profound changes to bring Soviet policy into alignment with them. These changes in policy have been enabling, indeed triggering, conditions for the dramatic political shift in Eastern Europe, and they have even broader implications for global security and global economic relationships.

Soviet Reform

The main themes of the Soviet policy shift are military disengagement and economic integration. Each is backed by a very solid logic of national interest and is likely to endure, whatever the political fate of immediate Soviet leaders. The Soviets obviously intend to preserve a basic deterrent capability but have recognized that their former policy of projecting a conventional weapons threat against Western Europe, or anywhere else outside their own territory, has become infeasible and counterproductive. Though the process is clearly moving more rapidly than they find comfortable, they have explicitly intended to replace the alliance confrontation in central Europe with a cooperative security arrangement.

The essence of such an arrangement is to produce better security at lower force levels and lower cost both for themselves and for everyone else. The key to this efficiency is the mutual acceptance of more limited, defensively focused missions and a greatly expanded exchange of information about force deployments, weapons production, and operational practices. That is, in fact, a compelling proposition, and it is very likely to become the basis for a new international security order.

Economic integration is a companion theme in Soviet policy. It is based on a recognition that inferior performance is an inevitable consequence of the stark economic isolation the Soviets have imposed on themselves. They have recognized that they must overcome this isolation and that to do so they must adapt their economy to basic market principles. Such a transformation is unprecedented, and there is no ready design for accomplishing it. The difficulties to be encountered and the degree of success achieved are very much open questions. The main line of policy is not. Integration into the world economy is a true imperative for the Soviet Union, as it is for everyone else. That fact will also be a determining element of a new international political order.

U.S. Reaction

These basic shifts in Soviet policy, driven by events the Soviets cannot alter, impose the ultimate necessity of equally fundamental changes in U.S. policy. The United States cannot preserve the military posture and standard politics of alliance confrontation if the Soviet Union does not play the role of

The Redesign of European Security

John D. Steinbruner

John D. Steinbruner is director of the Foreign Policy Studies program at Brookings. This article is taken from a presentation he made in March to the Royal Society in London. The arguments of the article are developed in more detail in his chapter, "Revolution in Foreign Policy," in the recent Brookings volume Setting National Priorities.

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dedicated adversary. The United States does not have the capacity to isolate the Soviet Union in economic terms if the Soviets are not committed to isolating themselves.

Under emerging conditions cooperative security is so much in the interest of the United States that it will have to become the central element of our security posture. Similarly, we will have to recognize our overriding interest in extending market operations to all parts of the world. In support of that objective we will have to abandon our traditional posture that emphasizes the imposition of economic sanctions on Eastern Europe and the Soviet Union and instead encourage economic integration. Economic engagement with Eastern Europe and with the Soviet Union is a necessary complement to cooperative security.

These impending policy adjustments are almost certain to be accelerated by German unification. Whatever the exact outcome of that process, it clearly will force new security arrangements in central Europe and cannot be based on traditional alliance relationships. It is prudent to assume that a unified Germany incorporated into an otherwise unaltered NATO is not an acceptable outcome to the Soviet Union and that no calculus of relative bargaining leverage can make it so. A neutral German state standing outside international security arrangements is even more unacceptable, even to the Soviet Union.

The apparent solution, likely to become increasingly obvious as these facts are absorbed, is to form a cooperative security agreement incorporating all the members of the CSCE (Conference of Security and Cooperation in Europe) on a nondiscriminatory basis. That would provide the necessary international regulation of military power as a unified German state is created and, if effectively designed, would enable the significant improvements in security efficiency inherent in the cooperative security idea.

Cooperative Security

The rough outline of a cooperative security arrangement is already discernible. It is anticipated that the CFE (Conventional Forces in Europe) talks will produce an agreement to equalize force balances between the two traditional alliances. That will reduce the major force concentrations and produce a set of force ceilings in which the respective alliance members are allowed, on average, a standardized armored brigade for every 50 kilometers of total national land boundary. Presumably national boundaries can be accepted as the legitimate defensive perimeter. If that simple measure of density were to be reduced to 75 kilometers per armored brigade, the required reductions would fall disproportionately on Soviet and German forces, and the resulting force ceilings would create an interstate balance in which no single country would have a decisive offensive advantage against any other without the acquiescence of the other states.

A stable cooperative security arrangement can therefore be established by applying this reduced density standard to all CSCE members; by requiring that all parties disclose their military deployments, equipment inventories, and production rates; by supplementary regulation of operational practices; and by periodic routine inspections to determine that the restrictions are being followed. The CSCE members would form a new organization, presumably incorporating the existing alliance staffs, to conduct the necessary inspections, transmit the resulting information to member governments, and manage certain critical functions internationally — most notably, military air traffic control in central Europe. Most forces would be withdrawn to national territory but some, including some Soviet personnel, would remain in central Europe in connection with the inspection and management functions. Most U.S. combat units would be re-

turned to the United States but with provisions for occasional redeployment forward at a presumably reduced version of their current basing structure.

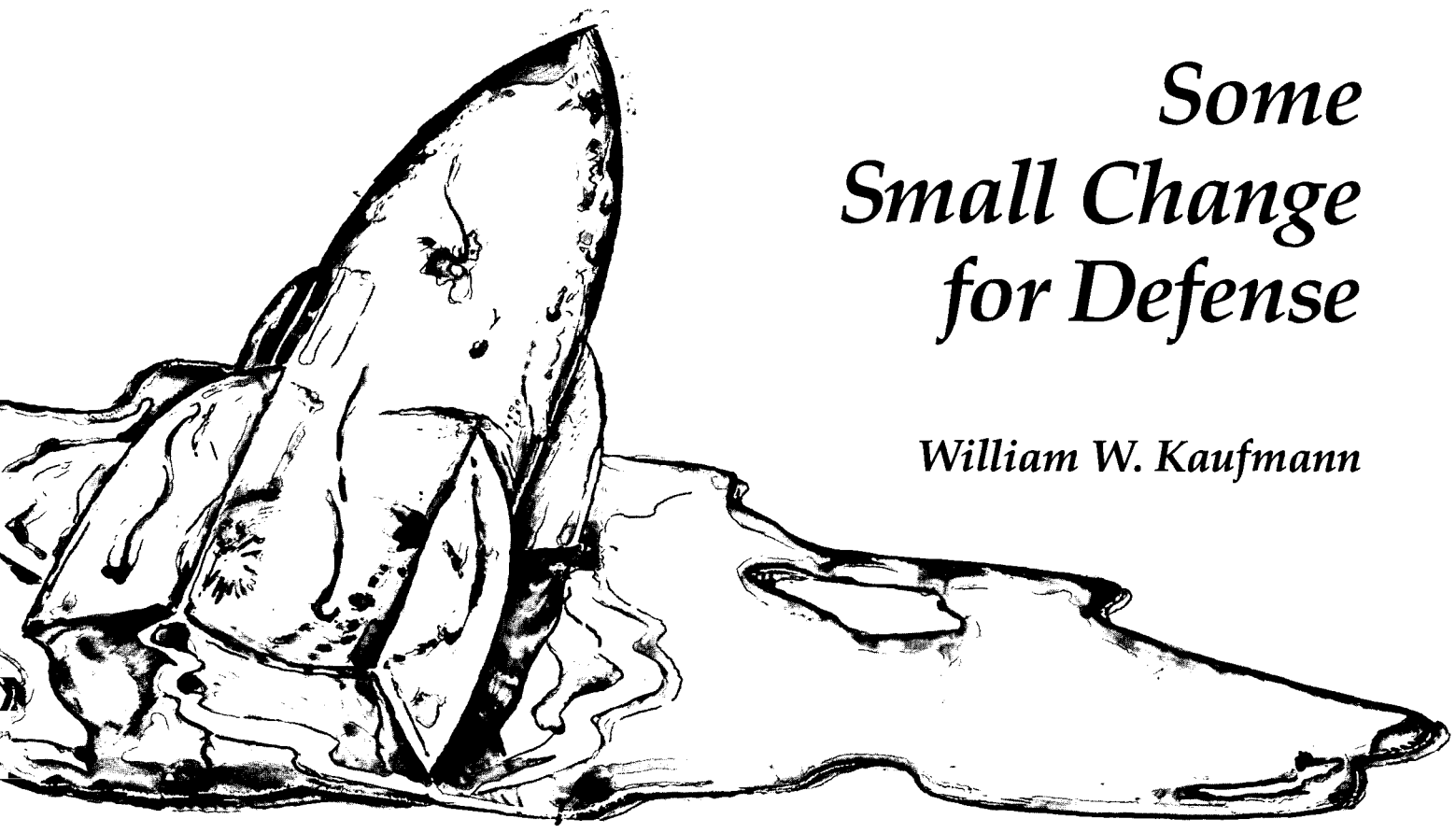
Nuclear weapons associated with NATO and the Warsaw Pact would be entirely removed under this arrangement, acknowledging the creation of an inherently stable balance of conventional forces both between individual states and between the traditional alliance organizations. In supplementary measure, the central strategic forces of the United States and the Soviet Union would be reduced toward the level of 3,000 total warheads each, and the other nuclear powers would accept their currently planned deployments as politically binding ceilings. Traditional strategic security guarantees would be preserved, for those states who desire them, as long as strategic nuclear weapons deployments are maintained.

This arrangement for central Europe could be extended to Asia by including all components of U.S. and Soviet forces and by asking other countries involved in the Asia theater to accept the common force density standards, the implied force ceilings, and the associated inspection and information exchange arrangements. That would require, however, that naval forces be included even though they probably will not be involved in initial arrangements in central Europe. Despite the political controversy currently surrounding the topic, extending force restrictions to naval forces does not appear to be impossibly difficult in substantive terms. Both U.S. and Soviet fleet sizes will decline because of internal budget pressures, and a virtue could be made of that fact. The removal of tactical nuclear weapons from naval deployment is more venture-some, but there are also some significant unilateral pressures working in that direction. At any rate, the cooperative security arrangement applied to naval forces has more to do with operational rules of engagement than with major changes in the size and configuration of current forces.

In addition to offering a substantial improvement in the tone and character of international politics — one that is more resonant with trends in popular opinion — the cooperative security idea does offer substantially improved performance of those security missions that can be mutually legitimized and very substantial reductions in prevailing defense budgets. Roughly speaking, U.S. forces under this arrangement would comprise 20 standardized Army and Marine divisions, 17 tactical air wings, 3,000 strategic nuclear warheads, and 570 ships. These forces would perform all deterrent missions equally as well as the current force structure does, would provide much more secure and more stable defense of traditional allies, and would encounter a dramatically reduced danger of crisis volatility. Defense budgets would be reduced by one-third, or \$100 billion a year in today's dollars, even if traditional rates of readiness and force modernization are maintained. If it is judged that readiness can be acceptably reduced (by, say, 25 percent) and modernization slowed (by, say, 50 percent), then the U.S. defense budget would be stabilized at half of the current level, a saving of \$150 billion a year in today's dollars.

Improved performance at dramatically lower cost is obviously an attractive proposition, particularly when the alternatives are considered. If we fail to consolidate the principles and the implications of cooperative security, we cannot expect to conduct security as usual by default. An attempt to preserve the traditional circumstances of alliance confrontation will undermine the legitimacy of U.S. military forces and hence their ability to conduct global military operations. If there is anything we should have learned in the course of 1989, it is the overriding power of political legitimacy and the devastating consequences of losing it. □

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Some Small Change for Defense

William W. Kaufmann

The collapse of communist regimes throughout Eastern Europe in the autumn of 1989 brought to life the issue of long-term U.S. funding for national defense in a way the country has not witnessed since the collapse of détente with the Soviets and the beginning of a new arms buildup a decade ago. Despite vigorous debate between Congress and the executive branch and in the media, the defense spending issue remains unresolved.

Retreating from its original position of requesting modest annual increases in the budget for national defense, the Bush administration in January 1990 proposed real reductions in budget authority. These concessions to the changes in Eastern Europe and the Soviet Union — meant to average 2 percent a year from fiscal 1991 through 1995 — are substantial. But they leave unanswered the questions that rose in 1989. The most salient of these are: first, to what extent has the Soviet Union changed its policies under the leadership of Mikhail Gorbachev? Second, how should the United States promote the conditions necessary to permit military forces in both East and West to be reduced and oriented more defensively? Third, assum-

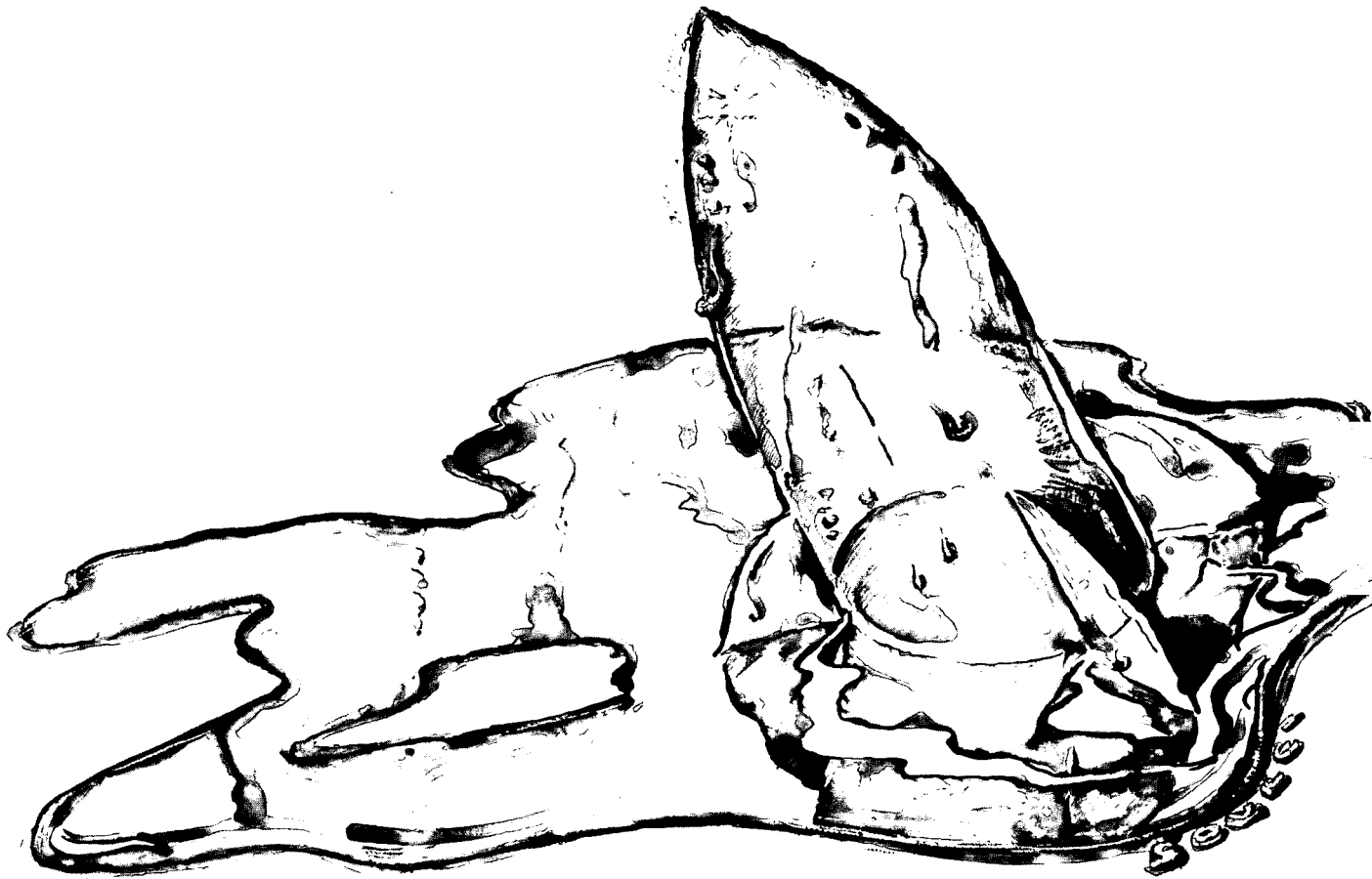
ing these conditions emerge, how should the United States revise the assumptions on which it bases the planning of its forces? Fourth, in light of any revisions, what shape might these forces take, and how much would they cost by the end of the century? Finally, how, specifically, should U.S. policymakers proceed toward these goals?

Traditional Assumptions

For nearly three decades, the United States has based its force planning on a number of major assumptions. In the case of the strategic nuclear forces, planners have postulated a Soviet first strike and have worked to ensure high survivability for U.S. offensive capabilities and to introduce some measure of flexibility into the use of bombers, land-based intercontinental ballistic missiles, and submarine-launched ballistic missiles — which has meant producing long lists of targets as well as large and diversified offensive forces to cover them. Planners have also flirted with ways to limit damage through active and passive defenses as part of the effort to strengthen deterrence of a nuclear attack on the United States and its allies.

So-called tactical nuclear forces (mostly weapons rather than specialized launchers) continue to be developed. They have also been deployed overseas on land and at sea to compensate for alleged deficiencies in U.S. and allied conventional capabilities. The assumption has been that their presence and the threat

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to use them first would increase deterrence of regional attacks — whether nuclear or non-nuclear — by the Warsaw Pact and other Soviet allies.

The size and composition of the conventional forces has resulted to a considerable degree from the assumption that the United States and its allies might have to deal with the possibility of several simultaneous attacks by the Warsaw Pact and its associates. The largest and most dangerous of these contingencies would be an assault on central Europe by as many as 90 Warsaw Pact divisions (31 of them non-Soviet) after only two weeks of reliable warning. This set of assumptions has created a major demand for combat-ready land, naval, and tactical air forces as well as a considerable investment in intercontinental airlift and sealift, equipment prepositioned overseas, war reserve stocks, and U.S. units stationed in sensitive regions to guard against surprise attacks.

All of these assumptions have rested on the shoulders of a fundamental premise, namely that the Soviet Union would remain a hostile power with expansionist tendencies. It has followed that such propensities would require at least selective containment and continued military competition, moderated but not seriously constrained by agreements to control the growth of nuclear arms. In addition, the belief that the Soviet military would maintain numerical superiority over the United States has invited a reliance on quality over quantity in U.S. weapons and a search for increasingly sophisticated capabilities and a more rapid replace-

ment of the inventory of platforms — whether missiles, aircraft, ships, or tracked vehicles — from which to deliver nuclear and conventional ordnance of growing potential lethality.

New Thinking

However well these assumptions may have served during the more wintry years of the Cold War, they began to seem more and more open to question as Gorbachev took to the international stage and changed both the direction of the play and the character of its villain. Indeed, by so much had he already abandoned the attitudes of his predecessors by the spring of 1989 that the opportunity to make a fundamental change in Soviet-American relations and alter the goals of U.S. defense policy already seemed inescapably clear.

But on what should a revised defense policy be based? Last summer I tested the implications of a new set of planning assumptions that postulate the development of a more benign and cooperative relationship between the Soviet Union and the United States and between the Warsaw Pact and NATO. On this basis, these findings (published in the book *Glasnost, Perestroika, and U.S. Defense Spending*) led to the conclusion that a series of arms reduction agreements and reciprocal actions of mutual benefit could lead to a real reduction in U.S. spending for national defense of nearly 50 percent by the end of the century.

The study suggested that such a goal would be at-

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tainable because, for one thing, the United States and the USSR could readily sustain high confidence in mutual nuclear deterrence at a level of approximately 4,000 strategic warheads on each side. Agreements between NATO and the Warsaw Pact to reduce conventional forces in Europe would permit the United States to cut its European deployments in half. Moreover, because the cuts would be asymmetrical and would bring the Warsaw Pact's capabilities down to the level of NATO's, warning time of a possible attack would increase substantially, permitting the United States to replace its active-duty NATO reinforcements (estimated at 10 heavy divisions and 12 modern fighter-attack wings) with units in the National Guard.

Other and less demanding contingencies — such as regional disputes in the Middle East and the area of the Persian Gulf — could be managed by relatively modest forces. Perhaps an active-duty capability of six Army and Marine Corps divisions, nine Air Force fighter-attack wings and no more than 260 Navy ships and submarines would suffice to deal with two small but simultaneous contingencies or a single but larger contingency on the scale of the North Korean attack in 1950. In this connection, the proposal rejected the notion of "presence" as the basis for maintaining more than six of the Navy's 14 carrier battle groups, on the ground that there are other and less costly ways of performing that ambiguous function.

Because of uncertainties about how the process would evolve, the proposal suggested dividing it into

three major stages, after each of which the momentum could be halted or reversed, depending on the circumstances. During the first stage, the gap would have been closed between the costs of major programs and the resources likely to be available for defense investments, largely by the cancellation of the more baroque weapons systems or deferral of their production until they had undergone comprehensive testing and evaluation. Furthermore, in anticipation of nuclear and conventional arms reduction agreements, gradual cuts in forces and national defense outlays would have been made between fiscal 1990 and 1994. In real terms, the rate of decline would have averaged almost 2.6 percent a year.

The second stage, from fiscal 1995 through 1997, assumed full implementation of the START (Strategic Arms Reduction Talks) and CFE (Conventional Forces in Europe) treaties. National defense outlays would have fallen again in real terms, but by less than 2 percent a year. Consequently, it was the last stage, fiscal 1998–99, that would have borne the brunt of the proposed reductions. Assuming further START and CFE agreements, along with reciprocal actions of a less formal nature, national defense spending would have declined on the average by 25 percent a year in real terms during 1998 and 1999 as the United States moved with unusual celerity to adopt its new strategy and force structure.

Collapse of the Warsaw Pact

Such caution during eight out of the 10 years, deemed necessary for the proposed transformation of U.S. military capabilities, seemed justified as long as the Warsaw Pact appeared more or less intact and the Soviet Union was approaching political and economic reform in a tentative fashion. But those conditions no longer prevail. For all practical purposes the Warsaw Pact has collapsed, and the Soviet forces remaining in Eastern Europe find themselves in a most awkward position. Gorbachev has already agreed to withdraw his divisions from Czechoslovakia and Hungary. Meanwhile his forces in East Germany dangle at the end of an increasingly vulnerable line of communications guarded by two Soviet divisions in Poland that are likely to remain there only until Poland's current boundaries gain formal recognition. What is more, even the Soviet forces in East Germany seem destined for withdrawal once the unification of Germany is well under way.

Not only has the Soviet Union lost the 53 non-Soviet Warsaw Pact divisions formerly included as part of the threat to Western Europe; it has also surrendered its East European buffer against Western attack (however fanciful that prospect may have been) and would have the greatest difficulty in recovering it. As William Webster, the director of central intelligence, pointed out last March, even if a hard-line regime were to replace the Soviet leader, it "would face the same types

of economic and social pressures that President Gorbachev has, and would probably continue to pursue arms control agreements with the West. It would be unlikely, in addition, to seek a broad reversal of the changes that have occurred in Eastern Europe, or to try to revive the Warsaw Pact."

In sum, the fundamental issue on which U.S. defense planning is based has changed. No longer is the question how many days the Warsaw Pact would need to mobilize and deploy for an attack on Western Europe. Rather, it is whether a conventional assault by the Soviet Union without the support of Eastern Europe is even in the cards, short of lengthy preparations and threats of hostile actions against neighboring nations. On balance, it would appear that this particular threat — which has justified so much of the American force structure and budget — has disappeared for some time to come.

The threat in Asia appears to be diminishing as well. Not only has Gorbachev already agreed to remove (and destroy) some 400 medium-range ballistic missiles from east of the Urals; he has also pledged, unilaterally, to take 200,000 troops out of the same area. Beyond that, he appears to be reducing the Soviet fleet in the Pacific by a third and is withdrawing forces from Cam Ranh Bay in Vietnam. He has, furthermore, resumed negotiations with China, moved to establish formal relations with South Korea, and indicated a willingness to deal with Japan. These are hardly the actions of an expansionist power.

A New Agenda

Such extraordinary windfalls have not come entirely free of charge. One consequence of the vanishing threat is that NATO has begun to lose its military *raison d'être* and will not find it easy to justify its continued existence either with a political role in Europe or as a safe haven for a united Germany. Indeed, whatever the future rationale for the alliance, it will be a major challenge to explain the need for the elaborate command and staff structure now in place or for the large forces stretching from north Norway to the eastern reaches of Turkey.

Another consequence is that the U.S. troops in West Germany, along with their nuclear weapons, could become only a little more welcome than Soviet troops in East Germany, especially if the latter start to withdraw. One implication of this and other developments is that negotiations for the reduction of conventional forces in Europe are rapidly growing dated, based as they are on the premise that non-nuclear stability at reduced levels is the function of approximately equal force levels between NATO and the Warsaw Pact. The emerging issue now is not NATO versus the Warsaw Pact but how to establish a serious collective security system for all of Europe, including the USSR.

Yet a third consequence is that the role of tactical nu-

clear weapons has diminished almost to the point of vanishing. Any deployment of modernized delivery systems — such as the follow-on to the Lance, a nuclear missile for the multiple-launch rocket system, or a tactical version of the short-range attack missile — will almost certainly meet with the strongest possible resistance from Germany and other allies. Moreover, the latest net assessment done for the Joint Chiefs of Staff reportedly suggests that NATO is currently capable of conducting a successful defense of Western Europe without the use of nuclear weapons. Thus, renewed demands to denuclearize Germany will probably join the agenda of changes the United States confronts as it draws up new defense plans, programs, and budgets.

National Defense: 1991–95

To what extent does this new agenda affect past proposals to cut U.S. national defense spending in half by the end of the century? The argument no doubt will be made that Moscow's behavior in Lithuania marks the return of hard-liners to the Soviet helm. Accordingly it will be said that the case for only the most modest reductions in national defense, as advocated by Secretary of Defense Richard B. Cheney, has been reinforced. Perhaps the argument will be accepted. But however tragic the actions of Soviet forces in Lithuania, they have more to do with the control of secession in the USSR than with the efforts of Gorbachev to end the Cold War and make the Soviet Union a partner instead of an adversary in international relations.

Because of those efforts, it now seems even more reasonable than it did a year ago to proceed with reductions in U.S. nuclear and conventional capabilities. In fact, an acceleration of those reductions can now be justified, not only because of events since then in Europe, Asia, Africa, and Latin America, but also because the opportunities have expanded for making verifiable reciprocal force reductions as well as more formal agreements in the first half of the decade. Such a combination should make it feasible between fiscal 1991 and fiscal 1995 to bring national defense spending down, in fiscal 1991 dollars, by an average of at least 4.4 percent a year, instead of the 2.6 percent I proposed in 1989.

A change of this order would require outlays of \$247.6 billion by 1995, cumulatively \$95 billion less than the estimate made in 1989 for the same period. Budget authority in 1991 dollars would be cumulatively \$201 billion less than Secretary Cheney proposed in his five-year plan of January 1990 (see table 1, page 30).

Cumulative savings in outlays would amount to only \$120 billion, however, owing to the large balances of prior-year budget authority that will continue to generate outlays regardless of appropriations for current and future fiscal years. Indeed, because of these balances, outlays would remain higher than budget authority for the remainder of the decade, unless Con-

Table 1. Defense Budget Plans Compared
(Fiscal years, in billions of fiscal 1991 dollars)

Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Budget authority (050)										
1990 Cheney plan	\$ 306.9	\$ 300.9	\$ 295.0	\$ 289.5	\$ 283.8	\$	\$	\$	\$	\$
1990 Kaufmann proposal	284.3	263.1	250.5	239.4	237.8	221.3	200.9	179.6	167.6	156.2
Difference	22.6	37.8	44.5	50.1	46.0					
Outlays (050)										
1990 Cheney plan	303.3	297.7	289.8	284.2	277.6					
1990 Kaufmann proposal	290.4	279.5	262.5	252.5	247.6	235.2	213.1	197.0	181.7	168.5
Difference	12.9	18.2	27.3	31.7	30.0					

Source: Office of Assistant Secretary of Defense, FY 1991 *Department of Defense Budget Request*, January 20, 1990, and author's estimates.

Table 2. Budget Authority by Major Program Under Reduced Spending Proposal
(Fiscal years, in billions of fiscal 1991 dollars)

Program	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Strategic nuclear forces	\$ 47.8	\$ 42.2	\$ 37.6	\$ 32.5	\$ 30.8	\$ 28.6	\$ 27.3	\$ 25.6	\$ 24.1	\$ 22.4
Tactical nuclear forces	2.3	2.3	2.3	—	—	—	—	—	—	—
Land forces	71.0	55.3	48.4	44.7	44.7	35.5	30.8	27.5	27.5	27.4
Special operations forces	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Land-based tactical air	38.4	38.3	37.4	37.4	37.4	36.2	32.4	30.0	27.0	25.1
Naval forces	73.0	72.9	72.8	72.7	72.8	70.7	61.7	49.5	43.9	38.0
Airlift and sealift	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Intelligence, communications	29.1	29.1	29.0	29.0	29.0	27.2	25.6	23.9	22.0	20.2
Subtotal, Defense Department	\$ 274.5	\$ 253.0	\$ 240.4	\$ 229.2	\$ 227.6	\$ 211.1	\$ 190.7	\$ 169.4	\$ 157.4	\$ 146.0
Military applications of atomic energy	9.0	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Defense-related activities	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Total national defense	\$ 284.3	\$ 263.1	\$ 250.5	\$ 239.4	\$ 237.8	\$ 221.3	\$ 200.9	\$ 179.6	\$ 167.6	\$ 156.2
National defense outlays	\$ 290.4	\$ 279.5	\$ 262.5	\$ 252.5	\$ 247.6	\$ 235.2	\$ 213.1	\$ 197.0	\$ 181.7	\$ 168.5
Active duty military (in 000s)	1,930.7	1,741.0	1,623.5	1,530.1	1,515.1	1,418.3	1,323.5	1,228.2	1,132.9	1,038.5
Selected reserve (in 000s)	952.6	952.6	952.6	952.6	952.6	952.6	952.6	952.6	952.6	952.6

Source: Author's estimates.

Table 3. Strength of Major Forces Under Reduced Spending Proposal*(Fiscal years, number of units)*

Force Type	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Strategic nuclear forces										
Bombers	219	176	133	90	90	80	70	60	50	41
ICBMs	832	666	503	342	289	251	213	176	138	100
SLBMs	608	576	544	528	472	456	456	432	432	408
Land forces (division equivalents)										
Active-duty Army	18	15	13	12	12	10	8	7	7	7
Active-duty Marine Corps	3	3	3	3	3	3	3	3	3	3
Reserve Army	17	8	8	8	8	8	8	8	8	8
Reserve Marine Corps	1	1	1	1	1	1	1	1	1	1
Land-based tactical air (wing equivalents)										
Active-duty Air Force	23	23	21	21	21	20	17	15	13	11
Active-duty Marine Corps	3	3	3	3	3	3	3	3	3	3
Reserve Air Force	14	14	14	14	14	13	13	12	12	12
Reserve Marine Corps	1	1	1	1	1	1	1	1	1	1
Naval forces										
Aircraft carriers	12	12	12	12	12	12	10	8	7	6
Surface combatants	228	228	228	228	228	213	188	155	136	117
Nuclear attack submarines	96	96	96	96	96	89	78	66	57	48
Amphibious warfare ships	55	55	55	55	55	37	37	37	37	37
Intercontinental airlift and sealift										
Wide-bodied airlift aircraft	401	401	401	401	401	401	401	401	401	401
Fast sealift ships	8	8	8	8	8	8	8	8	8	8

Source: Author's estimates.

Table 4. Budget Authority by Appropriation Titles Under Reduced Spending Proposal*(Fiscal years, in billions of fiscal 1991 dollars)*

Title	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Military personnel	\$ 74.9	\$ 68.4	\$ 64.4	\$ 61.1	\$ 60.7	\$ 57.3	\$ 54.0	\$ 50.8	\$ 47.4	\$ 44.2
Operation and maintenance	83.7	77.4	73.9	70.6	70.1	65.5	58.5	55.0	51.3	47.9
Procurement	71.3	65.9	62.8	60.0	59.6	55.7	49.8	39.8	37.3	34.1
RDT&E*	35.1	32.5	31.0	29.6	29.4	25.3	21.9	18.6	16.5	15.3
Military construction	5.2	4.8	4.6	4.4	4.4	4.1	3.7	3.0	2.8	2.6
Military family housing	3.2	3.0	2.9	2.8	2.8	2.6	2.3	1.8	1.7	1.6
Revolving funds	1.1	1.0	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.3
Subtotal Defense Department	\$ 274.5	\$ 253.0	\$ 240.4	\$ 229.2	\$ 227.6	\$ 211.1	\$ 190.7	\$ 169.4	\$ 157.4	\$ 146.0
Atomic defense activities	9.0	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Defense-related activities	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Total national defense	\$ 284.3	\$ 263.1	\$ 250.5	\$ 239.4	\$ 237.8	\$ 221.3	\$ 200.9	\$ 179.6	\$ 167.6	\$ 156.2

* Research, development, test, and evaluation

Source: Author's estimates.

gress could bring itself to rescind the funds previously appropriated for a number of ongoing investment contracts.

Even this reduced five-year plan would support substantial capabilities, provided that production of next-generation platforms and launchers is postponed at least five years or cancelled outright. Active-duty military personnel by 1995 would stand at a little more than 1.5 million — a reduction of about 500,000 from the official level proposed for 1991 — and the National Guard and Reserve would decline from nearly 1.2 million to approximately 953,000 (*see table 2, page 30*).

The strategic nuclear forces in 1995 would amount to 851 offensive launchers and 6,000 accountable warheads (as permitted under the proposed START agreement). U.S. conventional capabilities would also be considerable. Land forces would consist of 15 active-duty divisions as well as eight Army National Guard divisions and one Marine Corps reserve division. Out of the total of 24 divisions, nine would be heavy (armored and mechanized infantry), while 15 would be light (infantry). Land-based tactical air forces would include 24 active-duty fighter-attack wings and 14 Air Force National Guard fighter-attack wings, along with one Marine Corps reserve wing. Naval forces would comprise 12 carrier battle groups, the lift for one Marine Amphibious Force, and sea-control capabilities (mines, attack submarines, patrol aircraft, towed arrays of sonars, escort ships, and helicopters) sufficient to protect the shipment overseas of seven million tons a month — in all, more than 500 ships and submarines. Intercontinental airlift and sealift would remain at current levels, as would tactical (or intra-theater) airlift. In addition, government-controlled shipping would have the capability to lift 895,000 short tons on each outbound voyage (*see table 3, page 31*).

Absent from all these combat forces would be any tactical nuclear weapons. They would be phased out by 1994. This action, along with a substantially reduced demand for strategic nuclear warheads, would permit a real reduction of more than \$2 billion a year in programmed budget authority for the military applications of atomic energy.

Despite these and other reductions, the resources available for the main defense appropriation accounts would remain considerable. Over the five-year period, more than \$500 billion in 1991 dollars would go into investment — consisting of \$320 billion for procurement, \$157 billion for research, development, testing and evaluation, and \$23 billion for military construction. Another \$724 billion would be allocated to operating and support costs — including \$330 billion for military personnel, \$376 billion for operation and maintenance, and \$15 billion for military family housing. In addition, \$46 billion would be provided for the military applications of atomic energy, including major resources for cleaning up and repairing necessary nuclear production facilities (*see table 4, page 31*).

That greater reductions could be but are not proposed for this initial five-year period is due to two considerations. Just as the military services took several years to adjust to the greatly increased budget authority provided by the Reagan administration in the early 1980s, so, with somewhat lower enthusiasm, will they need time to adjust their plans and programs to less ambitious goals and declining budget authority. Beyond that, there has emerged the large issue of the U.S. forces deployed in Europe: the role, if any, they will play in a future European collective security system, and the specific capabilities they might contribute to stability and order on that continent.

As of September 30, 1989, the United States deployed 320,000 military personnel in NATO territory, not counting the 21,000 assigned to the 6th Fleet (more or less at sea in the Mediterranean). President Bush, after insisting that there were no grounds for changing this large military presence, offered two subsequent reductions as part of an agreement with the Soviet Union. Although he meant each of them to become a floor under U.S. deployments, each has turned into the ceiling of an elevator that is moving downward at increasing speed. In the circumstances, to suppose that the U.S. presence can be stabilized at 228,000 military personnel (leaving aside the 6th Fleet), with nearly 200,000 of them in central Europe — when the Soviet Union will probably have to retreat completely from the region — is not realistic.

But what will constitute a stable number? No doubt it will depend on the limits established for the forces of the European states, including the Soviet Union, and the extent to which the United States will be expected to play a balancing role against any aggressive combination. In the longer term, the U.S. presence is likely to fall to no more than a division and one fighter-attack wing (perhaps 50,000 men and women) as a symbol of the U.S. commitment. For the next five years, until the dust settles after other forces depart or dwindle, it may be worth trying to keep the equivalent of three divisions and four fighter-attack wings, or a total of approximately 160,000 military personnel, in Europe to smooth the transition to a new security system for the area from the Atlantic to the Urals.

National Defense: 1996–2000

How much lower could national defense spending prudently go from fiscal 1996 to fiscal 2000? The answer will depend substantially on whether the process of mutual adjustment between the United States and the Soviet Union continues and broadens. The process is so critical for U.S. defense planning because, as of now, roughly 54 percent of national defense funding relates directly or indirectly to the deterrence of nuclear or conventional attacks by the Warsaw Pact on Western Europe. If that threat disappears, anything more than modest U.S. defense capabilities will grow

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increasingly difficult to justify, whether or not the United States remains a "superpower." Apart from the questionable demands of status and overseas presence (never serious grounds for force planning), the nation is likely to need the following to protect its interests: a strategic nuclear capability somewhat smaller in the number of warheads than the 4,750 that existed 20 years ago, a contribution to collective security in Europe of relatively modest proportions, the conventional assets to deal simultaneously with two lesser contingencies elsewhere, and the maintenance of current airlift and sealift and special operations forces. Beyond those capabilities, it is difficult to see what purposes other than conspicuous consumption additional forces would serve.

Reaching these lower force goals would cause budget authority for national defense (in 1991 dollars) to fall by an average of 8.8 percent a year, and real outlays by 8 percent a year. On this downward slope — considerably less precipitous than the one I projected in 1989 — roughly the same force objectives would be reached, but in fiscal 2000 instead of 1999. Even so, because of the larger reductions incurred during the first half of the decade, cumulative real outlays would be \$78 billion less in the second half than they would have been under my 1989 projection. For the entire 10-year period, my 1990 projections result in additional real cumulative savings of \$171 billion over the 1989 projection. More important, the current proposal would cost \$430 billion less than the administration proposal, as-

suming that the Bush administration and its successors continue to reduce real outlays by 2 percent a year for the next 10 years.

With the exception of the tactical nuclear arsenal, which would be deleted, the forces in my 1990 proposal are virtually identical to those in the 1989 projection. The strategic nuclear forces in fiscal 2000 would consist of a triad of 549 launchers (of which 408 would be submarine-based) and more than 4,000 warheads. Ground forces would add up to 19 divisions, with eight heavy divisions in the National Guard oriented toward Europe and possibly one active-duty division stationed there. That would leave either 10 or 11 lighter divisions for garrison duty and lesser contingencies. The Air Force and Marine Corps would support these divisions with 26 fighter-attack wings, 12 of them earmarked for Europe. The remaining 14 would be available for other theaters.

The Navy would deploy six carrier battle groups, sufficient lift for two Marine Amphibious Brigades, and enough anti-submarine and anti-air warfare capabilities to control at least one major sea-lane and protect the movement of three million tons a month of military forces, equipment, and supplies. Airlift would still have the capacity to move more than 40 million ton-miles a day (meaning, on the average, about 12,000 tons a day to Europe, or 6,000 tons to the Persian Gulf), while government-controlled shipping would remain able to carry 895,000 tons on each outward voyage. Special operations forces would be maintained at their 1991 levels.

By fiscal 2000 these forces (along with national intelligence and communications, retired pay accrual, the military applications of atomic energy, and other defense-related activities) would require \$156.2 billion of budget authority, in 1991 dollars, and result in \$168.5 billion of outlays. Active-duty military personnel would amount to 1,038,000. The National Guard and Reserve would maintain 952,600 men and women.

Choices

Such a projection is not a prediction. Its purpose is to illustrate what cooperation, rather than confrontation, between the United States and the Soviet Union could produce by way of benefits for both. Of course, the alternative of muddling along singing a vagabond song may still find a majority of supporters. And perhaps, in any event, the two great continental powers cannot sustain such a joint venture for as many as 10 years or more. As events in Lithuania have shown, the relationship is still fragile. It could be disrupted or its benefits postponed. But the goals, however ambitious, are, at a minimum, worth formulating and keeping in mind. At a maximum, they may even prove attainable. President Gorbachev appears ready to take the course of cooperation. The United States could do worse than remember that it was a bold man who first ate an oyster. □



WARSAW PACT

The Warsaw Pact Today — And Tomorrow?

Raymond L. Garthoff

Five years ago, on April 26, 1985, Mikhail Gorbachev and the leaders of the six Eastern European members of the Warsaw Pact signed a protocol renewing that alliance for a second 30 years. It was Gorbachev's first major act in the international arena as general secretary of the Communist Party of the Soviet Union. None of the signers realized then that within five years all except Gorbachev and Wojciech Jaruzelski of Poland would be gone. Nor that of the seven members only the Soviet Union would still have a Communist government.* And none of them, including Gorbachev, could anticipate that the future of the Pact for even another 10 years would be in serious question.

During its first 30 years the Warsaw Pact served several purposes, primarily in the interests of the Soviet Union, but in some aspects also for its other members. In a paradoxical way, the Pact also came to serve certain purposes for the United States and NATO, if

only as an opponent against which the Western alliance could be rallied. While the several objectives and functions of the Pact in those years can be described in various ways, they fall within three major categories:

- A device for Soviet hegemonic control of its political, ideological, military, and economic bloc of Eastern European satellites or allies.
- A Soviet-controlled military command for contingent military operations, offensive and defensive.
- A mechanism for coordinating Soviet and Eastern European policies and actions in various spheres, including foreign policy, internal ideology, and military policy.

All of these roles were seen as mutually reinforcing and as serving overall objectives such as enhancing security and international influence. Ideological, political, economic, and military solidarity was taken as a given.

There were, in practice, flaws. Albania was virtually excluded by 1961 and formally withdrew in 1968. Romania from the mid-1960s was less than a full participant, in particular with respect to integrated military arrangements, and was in turn excluded from some military and intelligence coordination. The one time that several members of the Pact took up arms (though without having to resort to their use) was in 1968 to coerce another member, Czechoslovakia, to make internal political changes so that the political and ideological solidarity of the alliance would not be broken.

*Bulgaria in the first half of 1990 had a reform government based on the former Communist, renamed Socialist, party. Multiparty elections were scheduled for mid-June.

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Similarly, in 1956, only a year and a half after the formation of the Warsaw Pact, Hungary had been coerced by Soviet force to remain in the alliance. Nonetheless, while there were changes within and among the members over the years, when the Pact was renewed in 1985 it continued to perform all three functions.

Today the primary function is gone. The Soviet Union does not exercise hegemony over a monolithic bloc. The ideological solidarity has shattered, and the role of the Warsaw Pact as the successor to the Comintern and Cominform is dead. The Pact remains a political-military alliance, but it is no longer a tool of Soviet management and control. Nor is it an obedient bloc. Decisions can be reached only by consent of the members.

The military command arrangements nominally remain, but most of the members have annulled their predelegations of military command to the Soviet political and military leadership in the event of war or crisis. The national parliaments in Poland, Hungary, and Czechoslovakia have reasserted control over decisions on use of the armed forces. The German Democratic Republic in its interim remaining existence is a military ally in name only. Romania may, at least for the moment, be less distant from Moscow than it was, but it too will not subordinate its military. Bulgaria remains the most reliable ally.

Coordination among Pact members remains on a wide range of issues, but there, too, changes in relationships are apparent. A new consensual basis has developed in some areas. Pact foreign ministers, meeting in Prague in March, for example, agreed on supporting a Czech proposal for a pan-European Commission for Security in Europe that would build on the existing Conference of Security and Cooperation in Europe process. This agreement came even as the Soviet Union was isolated among Pact members in opposing NATO membership for a reunited Germany.

On other matters, particularly intelligence, coordination has been drastically curtailed. Czechoslovakia, Hungary, and East Germany have cut back coordination to such matters as combating the drug trade and terrorism. Coordination in some areas of counterintelligence also probably remains. It is likely that only Bulgaria (and possibly Poland) continues, for the moment, to coordinate closely with Moscow on political and military intelligence, and even there probably without the former intimacy and Soviet control.

Close political coordination has lapsed, in part because of the changes in the countries of Eastern Europe. East Germany, for example, has pulled its formerly active military, police, and intelligence advisory missions and programs out of countries throughout Africa and the Middle East. Czechoslovakia and Hungary are curbing arms production and arms sales programs in the Third World (although as the armed forces of these countries are reduced, there is some interest in selling surplus arms). But coordination has

also declined because of changes in Soviet policy. Moscow has given no indication that it would wish these activities of its allies to continue, and it is reducing its own similar activities.

As the Warsaw Pact has ceased to be a mechanism for Soviet control, it has gained some new value for its other members (and perhaps for the Soviet Union too) as a means of influencing world events. Concerned about maintaining its borders with Germany, Poland welcomes the reassurance it receives both from the Soviet troops on its territory and from the support of its other Pact allies. The new noncommunist governments of Eastern Europe may carry more weight in the West on issues such as the Czech proposal for a pan-European security arrangement than does the USSR. While ideological ties have frayed or broken, the Pact still reflects some unchanged geopolitical realities.

Erosion of a Military Alliance

Although the revolutionary events in Eastern Europe would have brought about the dismantling of the Warsaw Pact's military alliance in any event, it is important to recognize that the process began earlier, propelled by changes in Soviet political assessment, security outlook, and military policy and doctrine. These changes began in 1985–86 and accelerated in 1987, with the adoption of a new doctrine of defensive sufficiency, and in 1988, with major unilateral force reductions and further proposals for negotiated drastic arms reductions. While the pace of change in the last few months has undoubtedly been faster and less controlled than Gorbachev had foreseen, the direction of change had already been deliberately set.

By early 1990, all six of the non-Soviet member states had banned Communist (or any other party) organizations in the armed forces, and several even barred military officers from partisan political affiliation. The former Political Administrations and deputy commanders for political affairs (descendants of the "political commissars") have been either abolished or converted into at least nominally nonpartisan political education and welfare bodies.

All Pact countries, including the Soviet Union, are substantially reducing their military personnel and restructuring the remaining forces on more defensive lines. Hungary and Czechoslovakia, for example, are eliminating tactical offensive short-range missiles, and Hungary is eliminating tactical bombers as well. Hungarian troops are being distributed around the country rather than deployed in the western part, in accordance with a "defense of all azimuths" policy.

Conscription tours have been reduced in all member countries except the Soviet Union: in Hungary, Romania, and East Germany to 12 months from 24, in the others to 18 months. With the possible exception of Romania, Pact countries are all sharply cutting military production, including military export items. Czecho-

Officially, Soviet military commanders have reacted calmly and coolly to these drastic changes, saying that everything was proceeding without disruption. In fact, they are greatly concerned by the uncontrolled rush of developments

slovakia, for example, is ceasing production of the Soviet-designed T-72 tank and of its own marketable L-39 light utility and trainer aircraft.

The initial Eastern European force cuts, averaging about 10–12 percent, came in the wake of the 12 percent Soviet unilateral reduction announced in December 1988. Since late 1989 more drastic reductions have been announced and are under way. By 1992 on the order of 30 active divisions, rather than the 60 non-Soviet Warsaw Pact divisions credited in 1988, will remain in Eastern Europe and perhaps 10 instead of 30 Soviet divisions.

The Soviet armed forces beyond the borders of the USSR in Europe will decline from 575,000 men in 1988 to something between 300,000 and 400,000 by the end of 1991, located in eastern Germany and Poland. Of these, no more than 195,000 would remain under the accord with the United States for incorporation in the Conventional Forces in Europe (CFE) agreement. In practice there will probably be no more than 50,000 in eastern Germany by 1995, and perhaps none, depending in part on American forces in western Germany.

The limiting factor on the drawdown of Soviet forces in 1990–91 is logistical: the shortage of rail transport in withdrawing troops from Eastern Europe, including all remaining 125,000 troops from Czechoslovakia and Hungary by mid-1991, and the absence of living quarters in the USSR for those troops not demobilized (and in particular for officers' families).

With the probable special exception of eastern Germany, virtually all Soviet forces abroad will be re-

turned to the USSR by 1992. Soviet forces are scheduled to leave Czechoslovakia and Hungary no later than mid-1991, and will probably be out of Poland by 1992. All Soviet forces will also be returned home from Mongolia and Vietnam in 1992. Even Soviet military advisers are likely to be withdrawn in Ethiopia, Angola, and Mozambique and cut back, if not fully withdrawn, in Cuba.

No longer seeing a need for nuclear weapons stationed beyond its borders, the Soviet Union will probably also withdraw all its tactical nuclear weapons from Eastern Europe sometime in 1990 — and call on the West to do the same. The Soviets have already taken some steps in this direction, removing in 1989, for example, all of their SU-24 (Fencer) long-range fighter-bombers from Eastern Europe (Poland and Hungary).

The joint Warsaw Pact military command, in practice a Soviet staff and command, has only a residual planning function. The one area in which it may still have some meaning, although that is unclear, is in coordinating air defense of Eastern Europe and the western USSR. If the Warsaw Pact continues to exist with its present membership (minus East Germany after reunification), it will probably still coordinate war plans for defensive operations against a hypothetical NATO attack. The kind of offensive strategic concept for even a war of defense that underlay alliance plans from the Pact's inception until at least 1987 can no longer even be planned.

The unilateral Soviet Western Theater of Military Operations command, established in 1984, may continue, on Soviet territory. The four Soviet "Front" field commands, stationed in East Germany, Poland, Hungary, and Czechoslovakia and known as Groups of Forces, will, however, dissolve in the next few years as these forces are withdrawn. Plans for wartime integration of the armies of those four Warsaw Pact allies into the four Groups of Forces have already had to be abandoned.

Officially, Soviet military leaders have reacted calmly and coolly to these drastic changes, saying that everything was proceeding without disruption. In a February interview with a German newspaper, for example, General Vladimir N. Lobov, the chief of staff of the Combined Armed Forces of the Warsaw Pact, said: "Recently the allied [Pact] states have again declared their loyalty to the obligations arising from the Pact and have stressed that the Warsaw Pact guarantees their sovereignty and security. . . . At the same time, the necessity to perfect the instruments and activities of the alliance and to turn it from a military-political organization into a political-military one is emphasized."

In fact, Soviet military leaders are greatly concerned by the uncontrolled rush of developments. At the Pact chiefs of staff meeting in January 1990, to which General Lobov was undoubtedly referring, the Soviets reportedly were unable to get the unequivocal and un-

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conditional commitment to “loyalty” to the Pact that they sought, and that meeting may come to be regarded as the symbolic turning point in the demise of Soviet military command over the armies of Pact countries.

Asked by a Soviet interviewer in February whether withdrawal of Soviet military forces from Czechoslovakia, Hungary, and Poland would not “bring harm to our defense,” Lieutenant General Igor Sergeyev responded bluntly: “Undoubtedly. Parity was calculated on the existing status quo. Defensive doctrine counts on the present grouping and deployment of troops. As we lose space, we come closer to danger. If under parity someone loses, that means someone else gains. *The impending changes in the Warsaw Pact certainly are a loss for us from the military point of view.* And all the theoretical dissertations about replacing a military-political alliance with a political-military one are little consolation. That’s a play on words” (emphasis added).

It was, of course, Gorbachev himself who set the objective of turning the Warsaw Pact into a primarily political alliance, well before the revolution of November–December 1989. And the official decision was made in July 1989 at a meeting in Bucharest of the Pact’s Political Consultative Committee. But the Soviet military leaders in particular no doubt foresaw a much more gradual and less far-reaching transformation. Their expectations are especially clear from an article written before mid-November 1989 by General Petr Lushev, the Warsaw Pact’s commander-in-chief. In this article, which appeared in the January 1990 issue of *Military Thought*, the Soviet General Staff journal, Lushev discussed the defensive doctrine and announced reductions in Soviet and Eastern European forces, but

he gave no hint of deep unilateral Pact reductions, the impending demise of East Germany, or a restructuring of the very alliance.

Revealed: A Crack in the Curtain

Throughout the Cold War, it was the Soviet expectation that in the event of war, depending on the circumstances of its outbreak and the nature of the war, a spirited “diplomatic conflict” would accompany the armed conflict. As one Soviet military theorist, Major General Vladimir Zemskov, wrote in *Military Thought* in 1969, “The point of diplomatic conflict will obviously be directed toward weakening the hostile coalition in every way possible, by means of separating individual states from it and depriving the main enemy of his international ties and support from allies, dependent and neutral states.”

For the Soviets, this diplomatic conflict represented both opportunity and threat. Thus, in the words of one Soviet strategist, Colonel General Nikolai Lomov, also writing in the confidential General Staff journal, “It is clear that in the course of a war one of the main tasks of the socialist coalition will be to attract on to its side the peoples of non-socialist countries.” At least equally prominent in Soviet thinking, though rarely articulated, has been concern over Western ability to do the same to them. As General Zemskov wrote, the imperialists have been expected to “attempt to break up the socialist community [the Warsaw Pact] and to separate individual countries from its ranks.”

Although not much discussed in Western political-military writings, it is not surprising that in a war, and especially in a time of mounting tension and threat leading up to a war, both sides would seek to neutralize members of the opposing alliance by diplomatic-political inducements or pressures. What is new is the revelation of an actual case of a conditional defection by one alliance member a quarter of a century ago. Given the radical changes in East-West relations, the Warsaw Pact, and the governments concerned, it now seems appropriate to disclose this long-held secret.

The tensions generated by the Cuban missile crisis had significant reverberations in Europe, where no one wanted to be brought into a war over the issue of Soviet missiles in Cuba. While members of NATO and the Warsaw Pact dutifully gave public support to the United States and the Soviet Union, respectively, the leaders of one country decided after that crisis to seek to distance their country from any automatic engagement if their superpower alliance leader again assumed such risks.

The country was Romania. Its leadership confidentially advised the United States government at a very high level that Romania would remain neutral in any conflict generated by actions, such as the Soviet deployment of strategic nuclear missiles to Cuba, which had been taken without prior consultation with Roma-

nia. The Romanian leadership sought assurances that in the event of hostilities arising from such a situation, the United States would not attack Romania on the mistaken assumption that it would be allied with the Soviet Union in such a war.

The United States in response indicated that it would take note of any country that did not participate in or permit its territory to be used in military actions against the United States or its allies. In this connection, the Romanians were told that it would be important for the United States to know whether there were nuclear weapons on Romanian soil, and that if the United States were given assurance that there were none, that fact would be taken into account in U.S. targeting. The Romanians subsequently responded that there were no nuclear weapons in Romania and offered the United States any opportunity it wished to verify that fact. (The absence of nuclear weapons accorded with U.S. intelligence, and the United States did not pursue the verification offer.) Because of the sensitivity of the matter, any knowledge of this exchange was very closely held. It has, however, been authoritatively confirmed.

Thus, at least one large crack in the Warsaw Pact's solidarity existed long before the redefinition of the alliance's functions and authority began in 1989. Romania has not, of course, actively participated in the military command of the Pact since the late 1960s. The private Romanian approach to the United States, unknown to the Soviet leaders or anyone else, gave added meaning to the declaration in April 1964 in which the Romanian leadership first expressed public dissatisfaction with Romania's voice in the Warsaw Pact. Both

were undertaken by Gheorghiu Dej, marking the line of greater Romanian autonomy followed after 1965 by his successor Nicolae Ceausescu.

The fact that the Romanian leadership in 1963 had secretly expressed contingent neutrality to the United States represented a serious breach of alliance obligations. Today, should a war break out, Soviet command over the forces of any other Warsaw Pact country is no longer automatic, nor is the participation of any member.

New Role for the Pact?

While the departure of East Germany may seem to eviscerate the Warsaw Pact, it should be recalled that East Germany was not even a member until a year after the Pact was founded. Furthermore, the Pact itself was formed not in response to the founding of NATO in 1949, but in response to West Germany's admission to that alliance in 1955. A reunited Germany in NATO may have a similar effect in reviving Eastern European interest in maintaining the Warsaw Pact until a pan-European security system develops.

There is a dialectical relationship between changes in the Warsaw Pact and in the attitudes of its members toward the alliance. The fear that the Soviet leadership would be able to use membership in the Pact as an excuse to intervene in a member country's internal affairs has dissipated. As a consequence Soviet control is much weaker, but to the extent that the loss of fear reduces incentives for members to leave it, the Pact is stronger.

The Warsaw Pact also serves some residual military as well as revived political coordinating functions. Although the Eastern European member states will in time undoubtedly diversify their sources of higher military education and of military arms and equipment, for some time the Soviet Union and, to a lesser extent, other Pact members will continue to provide such services through long-established arrangements. Joint military exercises and planning will, however, drop sharply and in due course probably cease.

Deputy Soviet Foreign Minister Ivan Aboimov summed up the new grounds for an alliance among the members, based on mutual interests. The Soviet Union, he said in an interview published in February 1990 in the Soviet journal *Argumenty i fakty*, "will build relations in such a way that the countries of Eastern Europe can be convinced of the main thing: that alliance relations with the USSR will not be a brake on the path to their independent development, that the Warsaw Pact is not a means to preserve Soviet hegemony, but a necessary means to preserve stability in Europe until new structures of security are built guarding the common European home." That was frankly and well said. The alliance will continue only if its members, who now have a free choice, decide that it remains in their interest.

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For the present, none of the member states shows signs of leaving the alliance. As the new Hungarian Defense Minister, Colonel General Ferenc Karpati, stated in late February: "Hungary has no intention of withdrawing from the Warsaw Treaty, but considers it necessary to carry out changes in the organization in the interest of better adaptation to present-day requirements. The country's endeavor that the military defense blocs be dissolved in the foreseeable future does not run contrary to this. We see a possibility for abolishing these military alliances, but it is indispensable to set up a new European security system in order to guarantee security, reduce troops and armaments to a considerably lower level and dismantle offensive weapons."

These statements draw attention to what is probably the most important source of sustenance for the Warsaw Pact today, and on which its future will depend: a shared interest among the Eastern European members and the Soviet Union in seeing a new all-European security arrangement evolve that can replace the Warsaw Pact and, at least in part, NATO. Although Czechoslovakia, Hungary, and Poland — disagreeing with the Soviet Union — have said they prefer a reunited Germany to remain in NATO rather than be neutral, they also strongly favor a pan-European security arrangement, regardless of what happens to NATO. Accordingly, they support the Soviet call for dissolution of both the Warsaw Pact and NATO when a European security system comes into being. And in the meantime, the Warsaw Pact can serve — and is serving — as a lobby to boost such a European security system.

The Bush administration noted with great satisfaction the support of Czechoslovakia, Poland, and Hungary for German membership in NATO, but failed to note their preference for a pan-European security arrangement. Indeed, giving absolute priority to NATO, officials in the Bush administration have been very cautious about a European security regime because they fear it could become the preference of NATO countries as well.

The Bush administration also brushed off, perhaps too quickly, the Soviet proposal that a reunified Germany might be a member both of NATO and the Warsaw Pact. Dual membership would not, as Henry Kissinger and some others have suggested, be another way to neutralize Germany. Germany would not be cut loose; its ties to NATO could be undiminished. NATO would hardly suffer from having one of its members also privy to Warsaw Pact discussions. And if Germany were in the Pact, Germany and the Soviet Union might act as counterweights to each other, something Poland, Czechoslovakia, and Hungary might welcome. But in the light of strong negative reaction from the United States and NATO, dual alliance membership for Germany seems quite unlikely.

While the Soviet Union had implicitly drawn a line as recently as the summer of 1989 that no members of

the Pact should leave no matter what internal political changes occurred, that situation no longer prevails. The future of the Warsaw Pact will be determined primarily by the outcome of a struggle between two contending considerations. On the one hand, the Pact has outlived its main original purposes and, moreover, bears the burden of its past sins. On the other hand, a reformed and revitalized Pact may be able to serve new roles on behalf of its Eastern European, as well as Soviet, members. If such new functions are seen as outweighing the onus of the past, the Pact will survive; if not, it will succumb.

All members of the Pact favor a gradual replacement of both counterposed alliances by a common pan-European security arrangement. Soviet leaders, and especially military leaders, seek simultaneous dissolution of both alliances. But NATO does not intend to dissolve. Most members of the Pact, and probably the Soviet political leadership as well, would settle for seeing the Warsaw Pact fade away as a European security system develops, even if (as would be likely) the NATO alliance remained.

The United States and its NATO allies thus have a major voice in the future of the Warsaw Pact. If NATO is given such exclusive priority in the security realm by its members that the prospects for enhanced East-West security cooperation are prejudiced, the values of the Warsaw Pact to its members will be enhanced and it will probably continue. If the members of NATO, in particular the United States and Germany, maintain their alliance but also cooperate in building a European security system embracing all of the continent, then perceived need for the Pact by its smaller members will diminish.

Similarly, so long as the CFE negotiation remains structured in terms of parity in a balance between two contending military alliances, there will, paradoxically, remain an implied need for the continued existence of the Pact to support the process of arms reduction in Europe. The alliances are currently necessary adversary-partners. But that can be changed.

Finally, it should be noted that if the Warsaw Pact should be disbanded (as it might, for example, if both Hungary and Czechoslovakia were to leave after East Germany dissolves), the other members — and, for that matter, those that departed — might reaffirm bilateral alliance arrangements with the Soviet Union and perhaps in some cases with one another. Such bilateral arrangements antedate the Pact and could be maintained or reinvigorated after it ceased to exist.

The future of the Warsaw Pact is thus uncertain. It will probably have only a relatively short life as a voluntary political-military alliance, but it does continue to exist, and it may have a brief renaissance as a political-military consulting forum before it loses its newly redefined *raison d'être*. Only time, the course of events, and the actions of the countries of both alliances will tell. □

Lisa Crawford and her family live in Fernald, a quiet town in southwest Ohio not far from Cincinnati. Like many Fernald residents, Lisa used convenient backyard well water for her family's drinking, cooking, and bathing. She never dreamed that anything in the town posed a threat to her family's health. She was wrong.

Like everyone else in Fernald, Lisa and her family lived in the shadow of a U.S. government nuclear weapons plant, one of 17 located around the nation. The government went to extraordinary lengths to keep the true purpose of the plant secret, even labeling it a "Feed Materials Production Center," conveying the impression that it was manufacturing fertilizer. Unknown to most of the citizens of Fernald, the plant had been processing uranium for over 38 years as an integral part of the nation's nuclear weapons production system.

Nor did the town's residents know that for decades the plant had been emitting thousands of pounds of radioactive dust that blanketed the countryside. In addition, plant officials — under the gun to meet production deadlines — had permitted toxic by-products to seep out of leaking containers, gradually poisoning Fernald's underground well water supply.

In April of 1985, following public disclosures about the environmental hazards surrounding the plant, Lisa Crawford and four other Fernald residents filed a \$300 million lawsuit on behalf of 14,000 people living within five miles of the plant. Although the lawsuit was directed at National Lead of Ohio, the company that ran the uranium processing plant for the Department of Energy, the real target was the federal government. The residents alleged emotional distress and diminished property values caused by plant mismanagement.

Last year — with great public fanfare — the lawsuit was settled when the Department of Energy, on behalf of National Lead, agreed to pay \$78 million to Lisa and other Fernald residents. Deputy Energy Secretary W. Henson Moore immediately heralded the settlement as a symbol of a new era of environmental compliance; in resolving the Fernald litigation, the Department of Energy hoped to minimize the public relations black eye it had received and to continue the task of recasting the troubled image of the agency.

Yet this decision to settle the suit, widely praised by all parties and the general public, is only the beginning of the story. What the settlement itself actually says — and does not say — could have a profound impact, not only on people like Lisa Crawford, but on American law as well.

The legal language surrounding the settlement immediately created as many problems as it solved. On the plus side, the Energy Department agreed to pay up to \$5 million to compensate Fernald residents for decreased property values resulting from environmental harm. Energy officials also agreed to pay up to an additional \$1 billion over the next six years to clean up the environment around the plant. Whether this amount will prove sufficient has recently been called into question, threatening the future of the entire settlement. Whatever the final amount agreed upon to ensure environmental cleanup of the area, it is clear that the government has decided to fork over more than small change; Lisa Crawford and Fernald have achieved an important victory.

But, and it is an important but, although DOE has agreed to pay the money, it steadfastly refuses to accept any legal responsibility for what happened. More important, the settlement makes a critical distinction between environmental damage and the physical and emotional injuries Fernald residents allege they suffered from their exposure to the plant's toxic emissions. These injuries are not to be compensated. True, the government agreed to pay millions into a court-administered fund that will permit ongoing medical monitoring of the 14,000 residents for a five-year period. But, it has not offered a single cent to any resident for health-related claims allegedly caused by toxic exposures. Those who desire compensation for

In the Shadow of Fernald: Who Should Pay the Victims?

Kenneth R. Feinberg

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these physical injuries — as opposed to environmental harms — will be compelled to bring separate lawsuits. Only if those lawsuits are successful will they be able to receive additional damages.

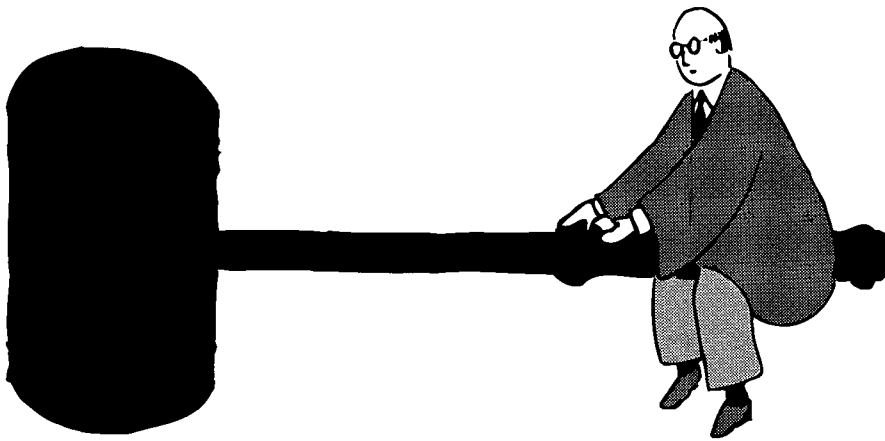
The Fernald lawsuit and settlement are the latest examples of a small but growing number of cases that raise troublesome questions about whether and under what circumstances the federal government should pay victims claiming injury from exposure to toxic substances. Nuclear weapons plants like those in Fernald, Savannah River, South Carolina, and Rocky Flats, Colorado, are joining a select group of household names signifying massive litigation — Agent Orange, asbestos, and the Nevada nuclear test site. These cases have two common denominators — they defy easy resolution, and they involve the federal government.

No Cooperation

The critical issue in such cases is not whether the victims will demand compensation from their government (they most certainly will), but how many citizens will assert a claim, and what remedy they will seek. Fernald, like the Agent Orange and asbestos cases before it, offers a striking example of the problems associated with resolving mass toxic tort claims filed against the federal government.

The first problem is that government cooperation is unlikely. If recent Justice Department arguments in lawsuits such as Agent Orange and asbestos offer any insight into government policy, you can bet that the United States will vigorously oppose such claims and deny all liability. It would be relatively easy to provide Fernald's citizens with some form of financial relief if the government conceded that at least some of the alleged injuries were, in fact, caused by inadequate safety practices at the nuclear plant. But the government shows absolutely no sign of conceding this fact. Although the Department of Energy has signaled a new era of good feelings concerning environmental cleanup, DOE remains cold and aloof when it comes to compensating claims of physical injury from such environmental exposure.

That should not be surprising. The government has just as stubbornly refused to participate in any of the Agent Orange or asbestos solutions designed to pay victims for their injuries. After dragging its feet for over a decade, the Veterans Administration recently proposed to make it easier for Vietnam veterans to be paid for certain kinds of rare cancers allegedly related to Agent Orange exposure in Vietnam; no VA payments have been made, however, and it appears that most Vietnam vets will continue to be denied any meaningful compensation. Meanwhile, the government



stonewalls when it comes to asbestos exposure, refusing to accept any responsibility for asbestos-related injuries suffered by shipworkers in building Navy warships during World War II.

Such cases tell us that the Department of Justice will be less than charitable with the citizens of Fernald and future victims of toxic exposure from government operations. It will continue to hide behind legal technicalities, while claiming the absence of medical evidence demonstrating a firm link between exposure to such toxic substances and resulting illnesses. Nothing in the recent Fernald settlement points to any change in this rigid government policy.

The underlying concern, of course, is that a decision to foot the expensive bill associated with paying victims would break the already overdrawn federal bank. In the absence of a national health insurance plan, which would guarantee financial relief without making lawyers rich, the government asserts no alternative but to avoid accepting any responsibility for injuries allegedly associated with Agent Orange, asbestos, and exposure to toxic emissions from nuclear weapons plants. It fears the specter of thousands of citizens who suffer from cancer, birth defects, thyroid deficiencies, and other grave illnesses and who demand help from their government, claiming that they were deliberately exposed to dangerous substances. The sheer number of cases, coupled with the problematic scientific and medical evidence linking individual illness to such toxic exposures, leads the government to stonewall, even though it played a pivotal role in the manufacture and distribution of the toxic substances.

What about the deep-pocket private corporations, like National Lead, Dow, Westinghouse, and Rockwell, who manage the various nuclear weapons plants? The United States may yet try to point the finger of blame at these private contractors and ask them to ante up all or part of the money. (The government did plenty of finger-pointing in the Agent Orange case.)

This strategy is unlikely for two reasons. First, in the Fernald settlement at least, the Department of Energy is standing tall, taking the heat on behalf of its contractor, National Lead, and promising to come up with the money for the cleanup. (Whether or not this demonstrates a major shift in the government's thinking about its environmental responsibilities remains to be seen.)

Second, the staggering costs of compensation would probably bankrupt even the most financially sound company; government buck-passing also ignores the limited role of the nuclear plant contractors, who take their orders directly from the government. That is why proposed legislation aimed

at requiring the contractors to pay makes little sense. Such efforts are born out of congressional frustration with the unwillingness of the Department of Energy to face up to its responsibilities in paying health claims. As a result, some members of Congress seek to hold the employee responsible since the boss can't be reached.

Turning to the Courts — or Congress?

Who should provide relief — the courts or Congress? Ironically, if the heralded settlements in the Fernald and Agent Orange cases demonstrate anything, it is that the courts are ill-equipped to resolve injury claims involving thousands of victims, especially when important public policy issues lie at the heart of the controversies.

The sheer numbers involved are the first problem. The Fernald lawsuit involves 14,000 residents. But that is nothing compared to the 250,000 Agent Orange claims and more than 100,000 pending asbestos lawsuits.

Our judicial system has always been based on the assumption that one citizen will sue another and have the case resolved by court and jury. Individualized justice, however, is impossible in lawsuits involving thousands upon thousands of citizens asserting a host of complex injuries against numerous companies as well as the United States.

The Fernald and Agent Orange cases are perfect examples of this dilemma. They both were, after all, *settlements* of pending lawsuits. No jury was selected, no evidence heard in a court of law. Never answered were the critical public policy questions — what is the appropriate responsibility of the U.S. government in the manufacture and distribution of Agent Orange? How does one balance the country's need for nuclear weapons production with the environmental and public health hazards associated with such production? These questions must be debated, but not in the courtroom.

Nor are victims' rights in such cases best vindicated in a court of law. Success in the courtroom often depends upon a roll of the dice — the quality of the lawyers, the attitudes of particular jurors, and the competence of the judge. When the trial involves not just one litigant but thousands, haphazard, inconsistent verdicts promote cynicism and divisiveness among similarly situated plaintiffs. The "system" is blamed for permitting recovery in one case while denying it in another. The Agent Orange case was finally resolved, but at the price of a good deal of unhappiness surrounding the settlement. Besides, the case dragged on for more than five years before it was assigned to one of the nation's most competent jurists, Jack B. Weinstein, who managed to forge a settlement within six months. Even then, complicated appeals from the settlement delayed payments an additional four years. Such costly delay is unacceptable but probably inevitable considering the high stakes involved.

In these cases Congress would appear to offer a better forum for ensuring prompt, fair, and comprehensive relief. There is precedent for this approach. The federal black lung and swine flu vaccine programs were designed to substitute an efficient, streamlined victim compensation system for the vagaries and uncertainties associated with trial. Although these programs have been widely criticized as being overly generous and lacking consistent standards of recovery, they demonstrate that Congress has, on occasion, been willing to preempt the necessity of lengthy, arbitrary judicial proceedings when the magnitude of the problem and the uncertainty of the result compel alternative solutions. How Congress goes about the task of ensuring equitable compensation without opening the Treasury to meritless claims remains a daunting challenge to those elected officials who view the plight of the victims — regardless of a demonstrated link between their exposure and illness — as justifying hefty compensation.

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Fair Payment

Fashioning a fair payment formula may be impossible. The toughest problem is deciding whether payment should be made at all, and if so, how much and for what type of injury. The 14,000 residents of Fernald must prove that their injuries were, in fact, caused by exposure to dangerous levels of radiation or other toxic chemicals. This key issue was deferred in the Fernald case because of the thorny, complex problems of scientific and medical proof. Can a resident of Fernald demonstrate to the satisfaction of the court and jury that his injury is both real and the result of exposure to unhealthy doses of nuclear radiation or hazardous waste? Can a cancer victim demonstrate that her cancer was caused by radiation from Fernald and not by some other cause such as cigarettes, gasoline fumes, or other toxic chemicals? In the Agent Orange settlement, Judge Weinstein, acting like a biblical Solomon, was unwilling to make such fine distinctions; instead, he awarded compensation solely on the basis of the seriousness of the veteran's disability. A similar approach to paying the most needy may ultimately be taken in the Fernald case.

Even if the hurdle of proof is overcome, the issue of damages looms large. What is a cancer case worth? A thyroid deficiency or birth defect? What do we pay the residents of Fernald who today appear to be in perfect health but will develop cancer decades from now? Should the government pay only those victims who live within five miles of the Fernald plant? What about those six miles away? Should such factors reduce or even eliminate the right to be paid? Exposure to Agent Orange while serving in Vietnam was a prerequisite for securing compensation in that case. Whether the Vietnam veteran served in a location close to where Agent Orange was sprayed has compelled the court to make extremely fine distinctions governing the likelihood of exposure. Such distinctions probably cannot be avoided in a law suit in which "exposure" is a key component of eligibility for compensation.

Possible Solutions

What possible solutions exist for the resolution of these problems? A few tentative ideas come to mind.

Fernald victims appear to offer a classic example of the so-called "indeterminate plaintiff," that is, radiation exposure was not so intense that any *individual* citizen can demonstrate to the satisfaction of court and jury that the exposure caused either present injury or the likelihood of future disease. It may be simply impossible — based upon the current state of scientific knowledge — for Lisa Crawford or anybody else to satisfy the legal burden of proof attributing present or future disease to such exposure.

One possible solution is the one that was taken in the Fernald case: avoid altogether the hornet's nest of problems associated with personal injury compensation and instead formulate a settlement program based upon objective calculations of property damages and the cost of relocating those citizens and businesses found to be too close to the plant site. This approach offers a tangible, relatively easily determined surrogate for personal injury exposure. The wrongdoer is punished, but no windfall accrues to those legally unable to demonstrate a right to personal injury compensation. Of course, renters, not just property owners, should be included (they weren't in the Fernald settlement). In addition, because the drop in property values arising from the exposure will vary, depending on how far the property is from the source of the emissions, payment amounts should probably vary as well. If the exposure did not spread evenly, then some scientific measure of exposure intensity should govern.

A property-damage settlement formula is not free of problems. By

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definition it excludes employees of neighboring farms and companies or others who do not possess any property. A property-based settlement is also regressive; it is relatively more beneficial to those individuals with more valuable property.

One additional avenue would be to use scientific, medical, and epidemiological evidence in an effort to determine a class of "likely exposed individuals." As already indicated, it is doubtful that such evidence could be used to justify payment of personal injury compensation to some citizens but not others. But individual cash payments are not the only alternative. The defined class could benefit, as Fernald residents will, from free medical monitoring (periodic medical checkups designed to discover early manifestations of disease). Or the defined class might be given free cancer insurance (with compensation benefits to be awarded in the event of any subsequent development of cancer) or even a *de minimus* cash settlement for an individual's "fear" or "risk of cancer."

If a personal injury compensation scheme is to be tried, it might be based upon epidemiological evidence demonstrating a significant increase in disease among the *general* class of "likely exposed individuals," as opposed to any *individual* claimant. This approach would rely for its legitimacy on the credibility of the epidemiological data and evidence, which would likely be challenged in court as unreliable. Nonetheless, it might be the only feasible way to ensure some degree of consistency — if not fairness — in the awarding of financial benefits for personal injury allegedly caused by radiation exposure.

One way to minimize the danger of awarding too little compensation to a claimant who seeks a pot of gold in the courtroom is to make such a program purely voluntary. Instead of mandating a class-wide settlement compensation scheme, permit those who prefer not to settle their claim to take their chances and litigate in court, using traditional tort principles, if and when an illness actually develops.

Those who maintained that cases like Agent Orange and asbestos were unique and would never be repeated are already being proved wrong. Recent events at our nuclear weapons plants are proof positive that a case like Fernald will soon be followed by other similar nightmarish cases involving thousands of citizens and a variety of complex issues.

Although we may as a nation argue whether or not the tragedy at Chernobyl could ever happen here, it is becoming increasingly clear that the Soviet government responded extraordinarily well in providing medical and logistical assistance to the victims of the disaster. Although the general standard of medical care in the Soviet Union is not very good by Western standards, some 80,000 people evacuated from the disaster site were brought to hospitals within a week for medical care and monitoring. Major health clinics were established, and some 600,000 people registered. A special effort was made to provide medical assistance to children and to monitor all infants born during and in the immediate aftermath of the accident. Compensation was provided by the government for property left behind as a result of the evacuation and for the costs associated with relocation. In addition, compensation for lost wages appears to have been provided on an interim basis, until new employment could be secured. Western-style litigation aimed at fixing "blame" for the accident — and delaying aid to the victims — was avoided.

It is true that the Soviet government practiced the fine art of officially covering up the disaster and went to great lengths to deny that the Chernobyl explosion ever occurred. (The full story is just now — four years later — being told.) But the government did acknowledge the obligation to its citizens and generally responded with minimal delay. At least in this area, the United States could learn a valuable lesson from the Soviet experience. □

Crises in Communist Reform: Lessons from Tiananmen

Harry Harding

The wave of political change that cascaded across Eastern Europe at the end of last year produced both amazement and satisfaction in the United States. Totalitarianism and tight central planning seemed to have lost their appeal, especially to those who had lived under them for more than four decades. Reform, moving in the direction of democratic politics and market-oriented economics, looked to be inevitable. The process of change, as it spread from country to country, appeared to be as irreversible as it was unexpected. American analysts understandably discussed these developments in epochal terms, describing them variously as the "end of the Cold War," the "end of communism," or even the "end of history." The contemporary era was said to be over, and a less threatening age was seen dawning before us.

The Tiananmen Incident in Peking last June should temper this optimism. In China, too, economic and political reform appeared to be an irreversible process, tracing an upward spiral toward greater liberalization and pluralism throughout the 1980s. The mass demonstrations that swept Peking between mid-April and early June of 1989 dramatically illustrated the extent of popular demands for even greater economic and political change. And the initial reluctance of the Chinese

government to use force against its own citizenry appeared to prove that the demands for a more responsive government could not be resisted.

But the tragic night of June 3–4 has shown us that political and economic reform is not irreversible, at least in the middle term. Despite brave predictions that the hard-line government that emerged in Peking would stay in office for only a few weeks or months, China has subsequently witnessed a sustained suppression of dissent, a reactivation of political education, and a tightening of administrative controls over the economy. Moreover, as a direct result of these developments, U.S.-China relations, which appeared in 1987–88 to have entered a period of great maturity and stability, are now experiencing their most serious crisis since the establishment of formal diplomatic ties in 1978. In China, at least, both Leninism and central planning have gained an unexpected reprieve.

These recent developments in China bear some general lessons both for the process of reform in Communist countries and for American policy toward Communist states. Four lessons are particularly germane:

■ Attempted reform may be inevitable, but successful reform is not. Although reform may score impressive achievements during an early honeymoon period, turbulence, crisis, and retrogression are all possible at later stages.

■ The breakdowns in the reform process may be dramatic — even violent — events, serving to exacerbate the degree of retrogression at home and to magnify

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fy the impact on the international community.

■ Breakdowns in reform present the United States with troubling foreign policy dilemmas, particularly regarding the appropriateness and effectiveness of sanctions against hard-line leaders in retrogressive Communist states.

■ Finally, even if periods of retrogression and repression prove temporary, successfully liberalizing Communist systems may continue to pose challenges to their neighbors, albeit in a significantly different way than in the past.

The Dilemmas of Reform

Much of the Communist world now seems to believe that political and economic reform is necessary. From Mongolia to Hungary, and from Poland to Vietnam, there is consensus on the need for less central planning and greater political openness. But there has been much less agreement on how to design the reforms: how fast to proceed, what sequence to adopt, and how far to advance.

For much of the 1980s the Chinese experience appeared promising. Under the leadership of Deng Xiaoping reform produced significant increases in growth rates, spectacular improvements in living standards, more intensive interaction with the international economy, and noteworthy gains in civil and political rights. But the balance sheet turned less favorable in the latter part of the decade, with increasing corruption, inflation, and inequality fueling sharp dissatisfaction among urban Chinese. Indeed, the Chinese case suggests that even after a strong start, economic and political reform can engender increasingly serious contradictions that can jeopardize the entire effort. Why is this so?

1. *Reform causes both pain and envy.* Clearly, the purpose of reform is to improve the performance of the economic and political systems by increasing their efficiency, productivity, and responsiveness. But these long-term benefits are accompanied by some sobering short-run costs. Eliminating subsidies and price controls will create strong inflationary pressures, at least until supply catches up with demand. Subjecting enterprises to more intense domestic and foreign competition and imposing greater financial discipline on them will most likely lead to bankruptcies and unemployment. Providing greater incentives for greater productivity and allowing the emergence of private and collective enterprises will generate new inequalities that can be perceived as unjust. And dismantling or deactivating old mechanisms of political control can lead to crime, corruption, and social disorientation, just as increasing opportunities for political participation will encounter resentment and resistance from entrenched party and government elites.

2. *Agriculture is no panacea.* The Chinese case has been frequently said to show the wisdom of starting economic reform in the countryside. And it is true that

the decollectivization of Chinese agriculture in the late 1970s and early 1980s provided a great boost to the overall reform effort by stimulating economic growth, providing more consumer goods for the cities, and building a firm political base in rural areas.

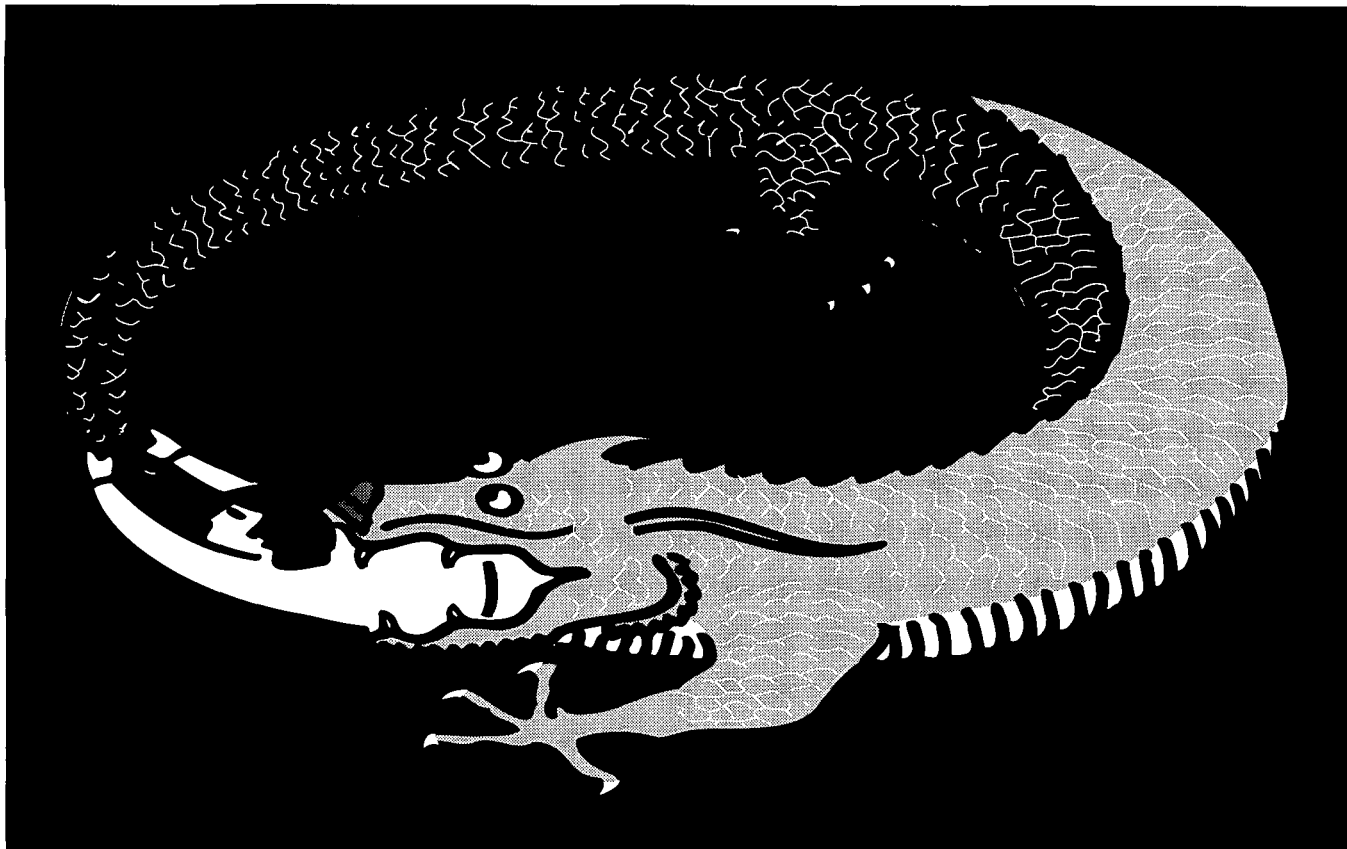
But the Chinese experience also shows that such benefits may be relatively short-lived. The increases in agricultural production in the early 1980s were largely achieved through a series of one-shot initiatives that cannot be repeated: dismantling the communes, dividing the land, and reinstituting family farming. Sustaining the gains over time will require stimulating investment and production by increasing the prices paid to farmers for their agricultural output. This, in turn, requires either that price increases be passed along to the consumer (thus exacerbating urban inflation) or that government subsidies be provided to either peasants or city dwellers (thus increasing the financial burden on the state treasury). Once the engine of reform, agriculture can soon become a brake.

3. *Stopping reforms halfway only intensifies the contradictions.* In the 1980s Chinese leaders succumbed to the understandable temptation of implementing those aspects of reform that would produce political and economic benefits while delaying those that would impose costs. Thus, they approached the conundrum of price reform by maintaining two sets of prices for critical commodities: a lower planned price (as a subsidy for favored consumers) and a higher market price (as an incentive to stimulate production). But as the gap between the two sets of prices widened, this halfway measure gave corrupt officials an irresistible invitation to buy cheap from the plan and sell dear on the market.

Similarly, Chinese leaders gave factory managers greater autonomy over investment without making them responsible for the profitability of their decisions. At the same time, they decentralized the banking system without maintaining controls over the money supply. The result: vast quantities of unprofitable projects, an overheated economy, and growing government subsidies for enterprises in the red. Once again, halfway measures selected in hopes of painless reform generated serious economic and political contradictions.

4. *Incrementalism may prolong the agony.* Chinese leaders approached restructuring in an experimental and incremental manner, trying out different strategies in local areas and phasing in reforms over a long period of time. At first, outside observers believed that such a cautious approach was wise, for it would impose the necessary pain of reform gradually and would allow a more accurate determination of the most effective techniques of reform. Increasingly, however, the risks of such an approach became clear. Incrementalism permits the contradictions inherent in halfway measures to grow and fester. By extending the costs of reform over time, such an approach may also dissipate the political support that reform may enjoy when it first begins.

This is particularly true when, as in China, an incre-



mental strategy involves distributing the gains of reform before imposing the costs. In such a case the public may gain the false impression that reform will be a relatively easy and painless process. Alternatively, rumors of impending price hikes and layoffs may create chronic unease and confusion. The Chinese experience therefore seems to support those who argue that economic reform should be conducted quickly, during the honeymoon period that a new government committed to restructuring may temporarily enjoy.

5. *Reform requires restructuring of both the economy and the political system.* One of the central issues in reform strategy involves the sequencing of political liberalization and economic restructuring. The Soviet Union under Mikhail Gorbachev illustrates the danger of undertaking political liberalization before launching significant economic change. In a more open political system, continued economic stagnation invites protest, and yet opponents of painful reform are simultaneously given greater ability to mobilize to oppose or obstruct.

China, on the other hand, exemplifies the danger of economic reform without adequate political change. The contradictions and pain inherent in economic reform produced serious social grievances. At the same time, the partial relaxation of political control and the growing independence of workers from their place of employment made it possible to turn those grievances into political action. But the political system remained

authoritarian, without adequate institutions for absorbing and responding to the wave of new demands coming from urban society.

In short, the Chinese case suggests the wisdom of instituting reform rapidly and comprehensively, taking decisive action along several fronts simultaneously. Even so, the process of political and economic restructuring will still be painful. There is no guarantee that the economic situation will respond smoothly or quickly to new market forces. Nor, despite political reform, is there any assurance that reforming Communist regimes will enjoy the legitimacy they need to persuade their publics to accept economic sacrifice for a long period of time. It is very possible, therefore, that the process will bog down midway, as the growing costs of reform steadily erode its base of political support.

Possibility of Dramatic Breakdown

Before Tiananmen, it appeared that breakdowns in reform would likely occur in relatively quiet ways, such as they did in Hungary in the early 1970s. Inflation, inequality, and corruption might eventually compel a government to suspend economic reform and reimpose administrative controls over the economy. Unorthodox new ideas might lead to a reactivation of political education, and political dissent might spark the reassertion of political controls over society. But it seemed that this sequence of events would happen

gradually and with restraint. In fact, China's own tortuous experience with reform — its economic austerity programs of 1980–81 and 1985–86, its campaign against "spiritual pollution" in 1983–84, and its suppression of student demonstrations in 1986–87 — suggested that periods of retrogression would be relatively muted and short-lived.

Subsequent events in China showed that breakdowns in reform can also be dramatic. Indeed, what was unexpected about the Tiananmen Incident was not the severity of the dilemmas that reform had encountered, nor the degree of retrogression that those dilemmas provoked, but the scale of the demonstrations and the brutality with which they were suppressed. The Chinese experience suggests that accumulated grievances — first from years of political repression and economic stagnation, then from the unrealistic expectations generated by the inauguration of reform — can be much larger than outsiders forecast. Partial political relaxation, especially if the national leadership is obviously divided, can encourage the expression of those grievances in intense and explosive ways. The inability of public security forces to cope effectively with large-scale demonstrations can then require the use of inexperienced military units, possibly with devastating consequences.

As dramatic as the events in China were, their international implications were further magnified by television coverage. The presence of a large international press corps in major Communist countries means that demonstrations, particularly in the capital, will be the subject of immediate and extensive reportage. The revolution in telecommunications technology — the prevalence of small videocameras, the portability of videotape, and the availability of direct-dial international telephone and facsimile service — makes it extremely difficult for Communist leaders to completely cut off news accounts to the outside world. Demonstrations for further political and economic reform are thus likely to find sympathetic audiences overseas, and any suppression of protest by the authorities will be swiftly and graphically reported.

The impact of the Tiananmen Incident on American perceptions and policy was also exacerbated by the presence of tens of thousands of Chinese students and scholars in the United States, a large proportion of whom were passionately committed to economic and political reform. The most active and articulate of them quickly learned to play a prominent role in the American political process, writing op-ed essays for major newspapers, testifying before Congress, and appearing on television news programs and radio talk shows. To be sure, no other Communist country has as many nationals in the United States as does China. But the impact of retrogression may still be magnified by the visitors who are here, as well as by the large émigré and refugee communities who settled in America in earlier years.

In sum, the Chinese case suggests the possibility that breakdowns in Communist reform movements may be sudden and violent, in ways that magnify the impact both at home and abroad. Domestically, a dramatic collapse increases the possibility that the Communist regime, now fighting for its life, will respond with sustained retrogression rather than marginal adjustment. Internationally, it increases the pressure on the United States government to respond in ways that embody the public's frustration at seeing its expectations for peaceful and constructive change so brutally dashed.

Dilemmas for the United States

Much of the discussion of the reform in Communist states has focused on the opportunities it presents to the United States. How can the United States facilitate political and economic reform in Eastern Europe? How can Washington take advantage of the new possibilities for arms control agreements with the Soviet Union? How can the West encourage the remaining hard-line Communist states, such as North Korea and Cuba, to join the trend toward economic and political liberalization?

These questions remain important and deserve continued and careful attention. But the Tiananmen Incident also suggests the need to consider an additional, more sobering issue: How should the United States respond to breakdowns — particularly violent ones — in the troubled process of economic and political reform?

For major Communist powers, such as China and the Soviet Union, the United States must weigh its interest in promoting human rights against its interest in ending the Cold War. There is, of course, the possibility that a breakdown in reform could produce a hard-line regime that initiated a more confrontational policy toward the United States. But what if the new leadership still wished to maintain a conciliatory stance abroad, even as it pursued a retrogressive policy at home? With some exceptions, this has been the foreign policy of the Chinese government, which insists that it wants to maintain normal relations with the United States even as it represses domestic dissent. It could also be the foreign policy of a conservative leadership in the Soviet Union, preoccupied with maintaining control over restive minority republics and assertive urban intellectuals. In such a case, it might well be American policy that would be responsible for a return to international confrontation. As one Soviet intellectual recently asked incredulously, "Do you Americans really believe that Lithuanian independence is more important than maintaining a friendly relationship with the Soviet Union?"

Even if sanctions were deemed appropriate, what form should they take? The Chinese case suggests the wisdom of limiting relationships — especially symbolic ones — with hard-line leaderships in post-break-

down regimes. Restricting some kinds of contacts clearly signals American repugnance at the repression of dissent and the abandonment of political reform. But the Chinese experience also suggests that attenuating cultural, academic, and economic relationships is unwise. Indeed, it is through these channels that pressures for change and ideas about reform can enter a Communist country undergoing restructuring. That explains why few intellectuals and reformers inside China are currently in favor of further American sanctions. On the contrary, they warn that substantive sanctions could enable the hard-line leadership to appeal for support on nationalistic grounds, blame economic difficulties on foreign intervention, and provide an ideal pretext for reducing further cultural and economic exchanges with the United States.

Finally, in confronting a post-breakdown Communist leadership, how effective can American sanctions be? The Chinese experience indicates that they will have an impact only if they are multilateral in character, enjoying the support of a broad range of Western nations. Otherwise sanctions will simply illustrate the isolation of the United States and will divert economic relations to countries willing to carry on business as usual with regimes where reform has been sidetracked. But the Chinese case also warns that even multilateral sanctions may not have an immediate positive effect on a regime that is fighting for its own political survival. Formal sanctions, therefore, must be sustainable for long periods of time, in the absence of any renewed movement toward economic and political reform.

Perhaps the most effective sanctions are to be found not in formal government action, but in the natural response of the marketplace. As a country experiences instability, repression, and retreat from economic reform, it becomes a less attractive partner for foreign lending, foreign investment, and even foreign trade and tourism. The net impact of these private and institutional decisions can be more severe over the longer term than the consequences of official actions taken by government.

Prospects for Renewed Reform

Given the widespread conclusion that totalitarianism and central planning are ineffective and illegitimate systems, it is tempting to assume that breakdowns in reform are temporary phenomena that will ultimately give way to renewed liberalization. In China's case, for example, many analysts predict that the deaths of Deng Xiaoping and the other octogenarians now in power will be the occasion for the resurrection of reform, perhaps in a more thoroughgoing manner than appeared possible before Tiananmen. Once again, a closer look at the situation in China evokes greater caution.

It is indeed possible that reform will revive, after the political and economic costs of retrogression became

In short, the Chinese case suggests the wisdom of instituting reform rapidly and comprehensively, taking decisive action along several fronts simultaneously. Even so, the process will be painful.

more apparent and when new leaders emerge on the political stage. But the obstacles will remain substantial. Reform will still impose significant economic, political, and social costs on powerful sectors of society. The most effective strategies for undertaking reform will remain elusive and controversial. And the difficulties China's reform encountered in the late 1980s may have weakened the political base for further restructuring. For these reasons, a mixed economy coupled with a renewed authoritarian system may endure for a long time. And if reform does revive, it may prove no more successful the second time than it was the first.

Even if reform does resume and prosper, the implications for the United States will still be mixed. It may be that successful reform in Communist systems will mark the end of the great ideological divide between capitalism and communism that characterized international politics throughout most of the 20th century. But to describe this outcome as the "end of history" is dangerously misleading. It may be more accurate to describe the implications as the "resumption of history," in which global geopolitics is once again characterized by a complex balance of power among many countries with competing claims for economic and strategic influence. A reforming China, Soviet Union, or Vietnam may no longer present an ideological or subversive threat to its neighbors, but it may continue to pose more conventional security challenges and may even provide an increasing degree of economic competition as well.

Thus, although the world is changing, it is not smart for us to engage in premature self-congratulation. Reform in Communist systems will be a difficult process, in which crises and breakdowns are highly likely. Periods of retrogression will present serious challenges to the United States and its allies. And, even if reform succeeds, the historical struggle for political influence and economic advantage among nations will not be completely abated. □

Capital Investment: Key to Competitiveness and Growth

Ralph Landau

Ralph Landau is consulting professor of economics and codirector of the technology and economic growth program at the Center for Economic Policy Research, Stanford University, as well as vice president of the National Academy of Engineering. This article is condensed from a longer paper written with the collaboration of Dale Jorgenson of Harvard University, where Landau is also codirector of the technology and economic policy program. He thanks Lawrence Lau and Timothy Bresnahan of Stanford and Paul Romer of the University of Chicago for helpful advice.

Much is heard about the lack of competitiveness in the United States, but seldom is that lack defined except in terms of international trade balances and market shares. In today's global economy, the United States will be competitive only if it can sustain an acceptable rate of growth in the real standard of living, with an acceptably fair income distribution, while efficiently providing employment for those who can and want to work. The country, moreover, must achieve this growth without reducing the potential for growth in the standard of living of future generations, a condition that constrains borrowing from abroad or incurring excessive future tax or spending obligations to pay for the current generation's higher living standards.

For much of the past century the United States met these conditions. From 1870 to 1984 real gross domestic product (GDP) grew at an average of 3.4 percent a year. Real income per capita grew about 2 percent a year, and standards of living nearly doubled from one generation to the next — illustrating the great power of compounding even small increments over long periods of time. In the decades immediately following World War II, the United States dominated the world economy, relying on domestic savings to meet domestic capital needs and using macroeconomic policy to adjust demand to cyclical changes. Supply could — and did — take care of itself.

Since 1979, however, growth of real GDP has slowed to an average, but uneven, rate of 2.75 percent a year, and real income per capita has remained virtually stagnant. Nor has the United States been able to export enough to pay for its imports of goods, services, and capital. Even though the absolute level of U.S. productivity is still the highest in the world, if these trends are not soon reversed, the United States could find itself yielding its economic and strategic leadership to Japan, whose real growth averaged 6.9 percent a year from 1952 to 1987, and very possibly to the post-1992 European Community, whose economies may be aided by the development of new markets in Eastern Europe.

Economic evidence and experience suggest that the United States must take full advantage of its opportunities if it wants to achieve faster growth. The nation did that in the past both when it invested in great discoveries such as the electric motor, petroleum exploration and refining, machine tools, and semiconductors and when it exploited existing technologies to their fullest potential. Today, the United States must fully capitalize on the promise of many new technologies in computers, telecommunications, biotechnology, robotics, catalysis, pharmaceuticals, materials, and the like. The fastest way to raise the average performance of the economy is to emphasize continuing application of these new technologies to leading-edge industries. But to do that effectively, we must both modify our theories of economic growth and provide a stable environment in which growth can flourish.

The Contribution of Capital

The rate of growth of output, or productivity, of an economy depends on the rates of growth of capital, labor, and technology. Empirically, technological progress accounts for a significant part of the growth in productivity — by some measures as much as 85 percent. The prevailing neoclassical growth theory, developed in the 1950s, holds that in a perfectly competitive economy, in the long-run steady state, the rate of growth is independent of the saving (or equivalently, the investment) rate; in other words, growth is independent of the proportion of output that is reinvested. Recent research, however, has pointed to the significant limitations of this theory, and particularly to its underestimation of the role of capital investment in growth.

Although the classical notion of perfect competition approximates the operation of markets for established goods such as commodities, it is not appropriate for markets that experience continual introduction of new products and rapid technological change. Detailed observation demonstrates that technology is largely a product of traditional economic activity and not exogenous or independent of it, as customarily assumed. Innovation and entrepreneurship have been more powerful forces for growth than the standard neoclassical growth model would recognize.

Particularly in this era of international competition, firms have found that price wars are unattractive and have focused where possible on those forms of competition with the greatest potential for profit — new or improved products, services, and processes. (That is the reason why firms engage in privately financed R&D.) Among the major manufacturing industries, which perform 95 percent of all industrial R&D, companies seek to differentiate themselves by product distinctions, better and lower cost technologies for their production, and more successful financing strategies.

According to detailed measurements made by my colleague Dale Jorgenson and his associates, capital inputs accounted for 44.2 percent of the country's economic growth between 1947 and 1985. Unlike those of earlier researchers, these measurements are wholly consistent internally, although they adhere to the neoclassical assumptions. A detailed explanation of these results is contained in a new book, *Technology and Capital Formation* (Jorgenson and Landau, MIT Press), which deals with the problems of both measurement and composition or aggregation.

Moreover, experience demonstrates that much of the capital spent by companies to maintain or expand their physical facilities incorporates new technology. That is why gross capital additions (and gross output) are the most important numbers to measure in determining the factors of growth. The composition of investment has shifted significantly from longer-lived to shorter-lived assets, such as computers, which depreciate more rapidly. Gross investment data are not af-

ected by such compositional shifts. The substitution of more highly productive capital goods embodying the new technology for goods that are less productive improves the quality of capital. Productivity of the economy thus rises, even if net investment is zero. But traditional measures of the contribution of capital to growth do not take these quality improvements into account. When they are factored in, capital's contribution is much greater than economists and others generally recognize.

One of the disadvantages of the neoclassical growth model of technology, capital, and labor is that it focuses attention only on the relative proportions in which these three inputs are used. It does not emphasize the importance of variation in their common rate of growth. There is no question that relative proportions matter. The experience of the centrally planned economies has clearly demonstrated that massive increases in physical capital without accompanying improvements in technology and the quality of the labor force lead to rapidly diminishing returns, just as the neoclassical model would suggest.

But because it considers improvements in technology and labor quality to be unaffected by public and private decisions, the neoclassical model fails to emphasize that these three inputs are intertwined pieces of the same process — a three-legged stool of human, physical, and intangible capital. The important point here is not to establish exactly how much each of these factors contributes to growth, but to recognize that there are sever-

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al identifiable ways to improve growth rates over a period of 20 to 30 years — investment in physical capital will pay off, as will improvement in the quality of the labor force and continued technological progress.

Improving the quality of capital obviously requires investment in new fixed assets. Indeed, as important as it is, the emphasis on increasing research and development efforts alone is misplaced, because the physical capital required to realize the R&D results is usually greater than the cost of the R&D involved. And the U.S. economy is not operating everywhere at the technological frontier. Many American industries are far behind those in other nations. Once a company exploits a technological lead with early market penetration, later entrants, even those with better technology, often cannot overcome the first entrant's economies of scale and learning curve improvements. Thus it may take 20 to 30 years of steady investment before existing or potentially important technologies can be fully exploited by American companies.

Martin Baily and Charles Schultze of Brookings, although still adhering to neoclassical theory and some of the earlier methodologies for measurement of growth, nevertheless concur that if an economy is not at the frontier, then additional investment can produce a longer-term increase in productivity growth. What is true for a country is also true for an industry. Jorgenson has shown that the higher productivity growth rates in Japan have been heavily influenced by a much higher rate of capital investment in a number of Japanese industries, which permitted them to adopt the latest technologies rapidly. From now on, comparative advantages of firms or industries in industrial countries will be determined endogenously and result in ever-shifting leads or lags. How competitive an industrialized country is in the world market no longer depends on its relative resource endowments (as Saudi Arabia depends on oil), but on how rapidly the country's industries can develop and adapt innovative technology.

America's failure to recognize fully the contribution capital makes to growth has led to a serious underestimation of the impact of investment in physical capital on growth. This failure is especially serious today, when growing environmental concerns, a deteriorating infrastructure, and a lower growth rate in a work force that needs even more education will require additional capital investments. Few dispute that raising the productive physical investment per worker is beneficial and will raise the *level* of output (and income) per capita; what some do not realize is that greater investment in physical capital offers hope that the *rate* of productivity growth can also be increased. At the same time, government policies in the United States have done too little to improve the climate for such investment. Without a favorable climate, business cannot be held fully accountable for failing to design a successful growth strategy.

The Climate for Growth

Several new studies by my colleagues at Stanford lead to the conclusion that stable government policies (fiscal, monetary, trade, and tax) favoring high rates of investment may be essential for higher levels of economic well-being in both the short and long runs. In fact, that seems to have been the secret behind the remarkable economic recovery both Germany and Japan made from total ruin at the end of World War II.

After examining business cycles and long-term growth in several major industrial countries, Steven Durlauf has shown that an appropriate stabilization policy is not meaningfully distinct from a high growth policy. High investments in one industry can induce high investments in other industries, resulting in higher growth rates, which allow still more investment even as present consumption increases. Several of my recent studies of the chemical industries illustrate how these spillover effects occur; the petroleum, automobile, apparel, and other industries depended crucially on the growth of the chemical industries, and vice versa. And as *The Economist* has noted, these results also suggest that the lack of investment not only causes a loss of productive capacity in its own right but also hurts the value of investments already made.

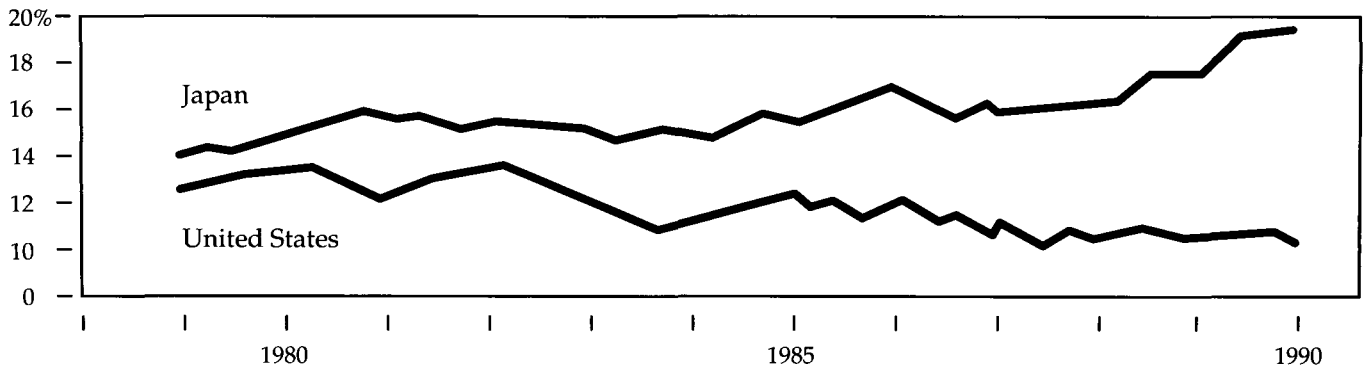
In a study of the economic performance of five industrial countries, Michael Boskin and Lawrence Lau have found that technological progress is capital-augmenting and that the benefits of technological progress are higher when a larger capital stock is deployed per worker. Capital formation and technological progress thus complement each other. Together, they account for about 70 percent of the growth in output in the United States, according to Boskin, who initiated the study while he was at Stanford, and Lau, who completed the work. Theirs is a finding of no small importance, since for the last 25 years the United States has invested proportionally less than the other major industrial countries in gross nonresidential physical capital. Furthermore, they concluded, under capital-augmenting technological change, a steady state may not exist even under neoclassical conditions; the limits to growth are expandable.

Publicly disclosing these results for the first time at an April 5th symposium of the National Academy of Engineering on "Technology and Economics," Boskin, now the chairman of the Council of Economic Advisers, said the Bush administration's economic priority was the achievement of the highest possible sustainable growth rate, and he referred to the importance of capital investment and technology as key elements in achieving that goal.

Why has capital investment lagged in the United States? John Shoven of Stanford and Douglas Bernheim of Northwestern have found that one important factor is the risk premium — the higher average return required by investors on an investment to compensate

Figure 1. Capital Formation Compared

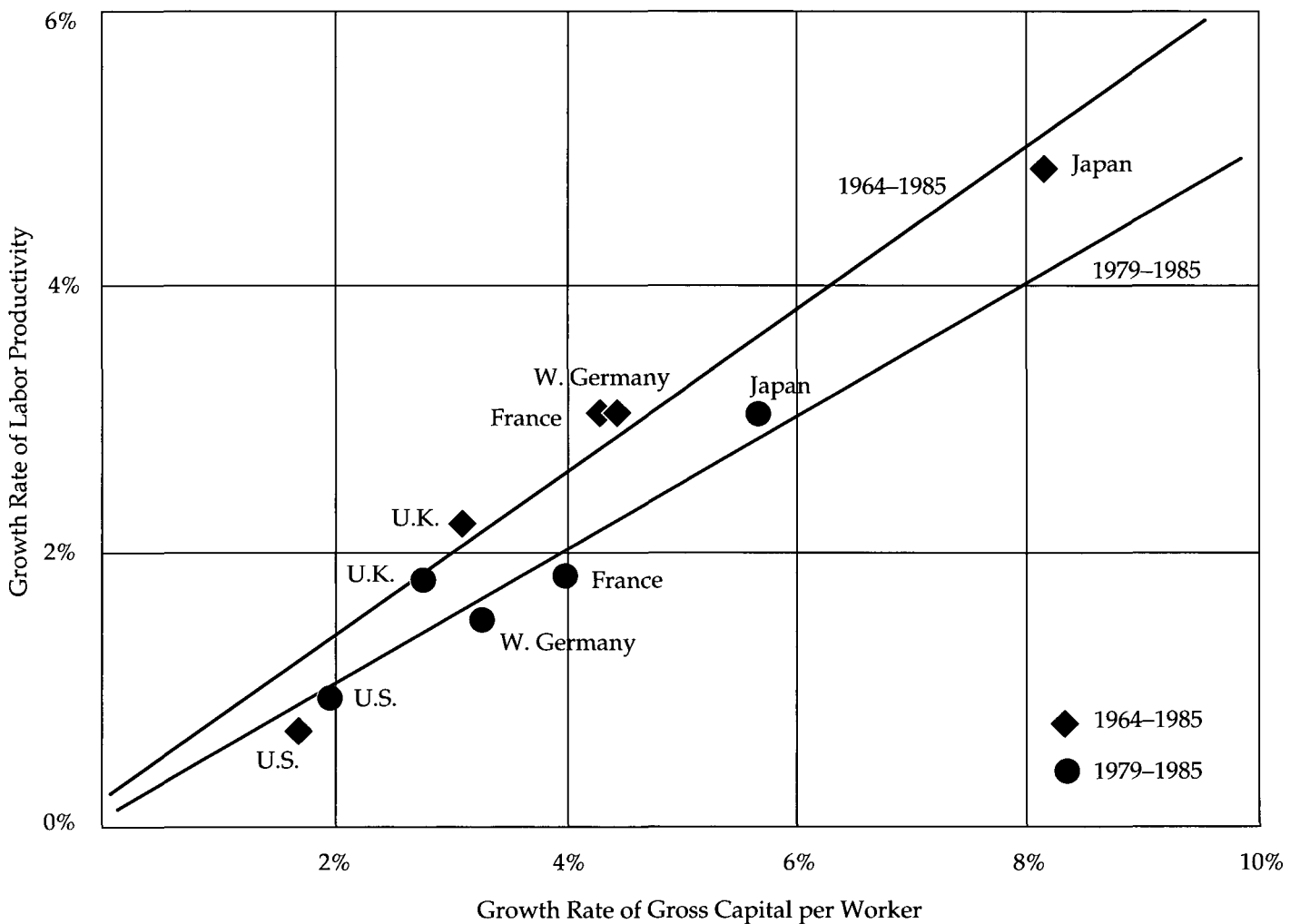
(Gross nonresidential capital investment as a percentage of gross national product)



Source: Datastream International/Worldview

Figure 2. Labor Productivity vs. the Capital-Labor Ratio for Five International Countries

(Average annual growth rates)



them for assuming the uncertainty of the outcome of the investment — and that it in turn depends on a country's macroeconomic policies. Frequent changes in those policies, particularly the volatile and unpredictable changes in tax rates, interest rates, and exchange rates (as Ronald McKinnon and David Robinson have found) make the cost of capital more expensive here than elsewhere. The cost of capital for Japanese companies is a third to a half as much as the cost to U.S. companies across a wide range of investments, as confirmed by a major study of the Federal Reserve Bank of New York.

This very expectation of uncertainty has further shortened the time horizons — the discount rates applied to an investment's future returns — of American companies. Yet the gestation period for physical investment is three to five years, while five to 10 years may pass before investment in research and development begins to pay off. The return on investment in education and worker training may not be realized for even longer.

Moreover, R&D is only one part of intangible capital, which also includes design engineering, experimental production, worker training, market development, start-up costs, market penetration, insurance, legal precautions, and the like. These operations are generally financed with equity capital or retained earnings, rather than borrowing. According to George Hatsopoulos of Thermoelectron, speaking at the April symposium, the real after-tax cost of equity in the 1980s was two and a half to three times as high as the real long-term, after-tax cost of debt and more than twice the Japanese real after-tax cost of equity. These high costs of equity, combined with the high real interest rates that companies must pay on the money they do borrow, has reduced investments in all kinds of capital by U.S. firms and thus their ability to compete on a long-term basis with high investment countries such as Japan and Germany.

Japan is on a capital spending binge that will surely strengthen its growth and export capability (see figure 1, page 55). The recent fall in the Japanese stock market and rising inflation bring to an end the speculative bubble in stock and land prices, raise somewhat the cost of Japanese equity, and herald a reduction in the flood of Japanese capital flowing overseas, especially to the United States. High real interest rates and slow growth may therefore continue here, unless the national savings rate improves, as it has recently begun to do. The adaptable Japanese system, however, continues to hold many advantages, and Japan should continue to grow over the longer term at a higher rate than other industrialized countries.

Figure 2 (page 55) clearly shows the correlation of gross investment with growth (on the same basis as Jorgenson's data for the United States cited above) and why the standard growth theory needs modification. The lower curve (1979–85) depicts the relationship

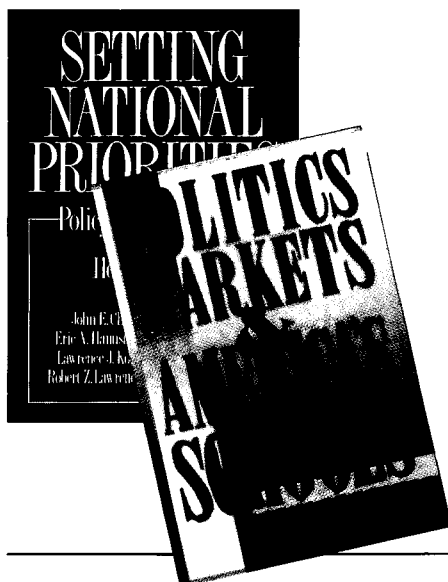
when the average level of technology is roughly equal (although the level in individual industries or firms may differ), and the slope of approximately 50 percent is consistent with the findings of Boskin and Lau. New theoretical work by Paul Romer of the University of Chicago, Richard Nelson of Columbia University, and others has shown how the original neoclassical growth models need to be greatly modified to fit actuality. Given imperfect competition, these modified models are the only ones that reflect reality and allow a role for patents and privately financed R&D.

If the United States wants to take advantage of the robust high correlation between capital per worker and growth and raise real living standards, it will need to adopt stable policies favoring long-term investment. The business cycle and long-term growth must be viewed from one overall perspective. Economists may quarrel over whether growth stimulates investment or vice versa, but in practice the order is immaterial. Supply is no longer assured, even if demand is stimulated, because of the long gestation periods now required to adopt technology more efficiently. What matters is that investment in *productive* physical capital can promote growth, as can the proper and stable management of macroeconomic policy by the government and of individual companies by the private sector.

The case for more investment in physical capital, education, and technology is grounded in the economic and technological opportunities facing the United States. The current importance of the great, and only very partially realized, revolution in information technologies means that technical progress is embodied in physical capital to an unprecedented extent. This embodiment links investment in new knowledge for growth with investment in new physical capital. Similarly, opportunities for technological advance are linked with investment in R&D and human capital. These new technologies demand a high mix of skills; here the American higher educational system offers a source of substantial comparative advantage to the United States, if exploited in concert with new investment in physical and intangible capital. But its secondary education system needs major improvement if the advantage is to be sustained for the long term.

What is needed is a policy to stabilize monetary and fiscal policy, increase savings, bring down interest rates, remove tax biases against saving and investment, increase expenditures for research and development, and reduce the inefficiencies in the financial and legal systems that retard investment in the most productive sectors. Without these basic changes, the high cost of capital, greater uncertainty, inadequate savings and investment, increasing reliance on foreign capital in an open world capital market, and short time horizons by corporate managers and public policymakers will continue to gnaw away at the American standard of living. It is time to cast aside the obsolete theories and policies of the past. □

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